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CONTENTS FOR 18 JUNE 1932

	Page
DESIGN FOR A RUSTIC VILLAGE AT FURZE HILL, BRIGHTON Decimus Burton	*Frontispiece*
JOURNAL	639
AMERICAN AIRPORTS. GODWIN BURSARY REPORT 1931. Graham R. Dawbarn [*F.*]	641
PRESENTATION OF THE WREN SOCIETY, VOLUME IX	659
REVIEWS:	
THE WREN SOCIETY. VOLUME IX. W. A. Godfrey, F.S.A. [*F.*].	661
RENAISSANCE PALACES IN NORTHERN ITALY. F. R. Hiorns, F.R.I.B.A.	662
A NEW BOOK ON TOWN PLANNING. Professor Patrick Abercrombie, M.A., F.R.I.B.A.	663
UNDERPINNING. Oscar Faber, D.Sc. [Hon. A.], M.Inst.C.E.	664
AMERICAN ARCHITECTURE. J. M. Richards [*A.*]	665
TOWN PLANNING. An Explanatory Pamphlet	666
ACCESSIONS TO THE LIBRARY	666
CORRESPONDENCE:	
H. BAGENAL	667
H. FARQUHARSON [*F.*]	667
PERCY WALDRAM	668
EXHIBITION	668
SCRUTINEERS' REPORT OF ANNUAL ELECTION RESULT	669
NOTES	670
MEMBERSHIP LISTS	673
NOTICES	675
COMPETITIONS	675
MEMBERS' COLUMN	676
MINUTES XXI	676
ARCHITECTS' BENEVOLENT SOCIETY	676

"View of the Rustic Village now being Formed at Furze Hill on the Estate of I. L. Goldsmid, Esq., Brighton"

By Decimus Burton (1800-1881)

From a lithograph in the R.I.B.A. collection

It is pleasant to think that the mind which planned, so appropriately, that grave and dignified building, the Athenæum Club, should be capable also of planning this Rustic Village; and that the architect who worked in London on such severely classical lines should so far unbend in Brighton as to evolve this strange collection of heterogenous houses combining pretentiousness with an astonishing naïvety. The house in the right foreground, with its battlements and turrets and its curving carriage sweep, resembles, down to the last detail of the flag flying from the tower, one of those fantastic pattern houses for the toy bricks of a child. Possibly this drawing was a reaction from Decimus Burton's staid efforts in London; possibly it was the result of the sea air of Brighton.

JOURNAL OF THE
ROYAL INSTITUTE *of* BRITISH ARCHITECTS

VOL. 39. 3RD SERIES 18 JUNE 1932 No. 16

Journal

In expressing our sincere congratulations to Dr. Raymond Unwin on the honour of knighthood conferred on him by His Majesty the King in the recent Birthday Honours list we are, we know, but expressing the pleasure felt by every member of the Institute. The wonderful progress made in town planning ideas and the increasingly wide recognition of those ideas by all people in this country are largely due to Dr. Unwin's persistent and skilful work both as practitioner and advocate in spoken and written word. That his services to the country should have received this Royal testimony during his years as President of the R.I.B.A. is, of course, for us an additional cause of pleasure and pride.

Other members of the Institute to be honoured in the Birthday Honours list are Mr. Ernest Alexander Rahles Rahbula, M.C., F.S.A., A.R.I.B.A., a senior Investigator on the staff of the Royal Commission on Historical Monuments (England), who has received the C.B.E. (Civil Division), and Major John Stewart, T.D., F.R.I.B.A., architect to the Lancashire Education Authority, who has received the M.B.E. (Civil Division). Many members of the Institute will also have noticed with pleasure the C.B.E. conferred on Mr. A. W. Clapham, secretary of the Society of Antiquaries and Technical Editor on the staff of the Royal Commission on Historical Monuments. Mr. Clapham's recent book on English Romanesque Architecture before the Conquest is one of the most important contributions to the study of that important period.

The main part of this journal is again given over to the subject of aerodromes; no apology is needed for a return to this subject so soon after the publication of Mr. Dower's paper, for, as is evident, there are few subjects which more demand the wise and careful consideration of architects at this time. As many speakers and writers have emphasised, if we are to avoid for aerodromes and their surroundings such evil results of haphazard growth as followed in the train of railway development, all our town-planners and architects must be in at the start. Mr. Dawbarn's paper, which is published here, is the result of a tour made by air in the United States during Mr. Dawbarn's tenure of the Godwin and Wimperis Bursary. Things move so fast in the aerodrome world that any undue delay in the publication of research may easily result in a great part of its value being lost.

Mr. Sylvester Sullivan's paper on City Office Buildings, reported in the last JOURNAL, marked the close of the most successful season of general meetings that has ever been known at the Institute. On several occasions the hall was full to overflowing, with late comers forced to stand, to their discomfort perhaps, but doubtless to the satisfaction of the lecturers. The moral of this is, of course, that we are to get our new building not a month too soon; it will then be possible to seat a large audience in comfort and to develop the social side of the Institute in a proper way. An interesting programme has already been drawn up for next session, when, we have no doubt, the success of the past session will easily be eclipsed.

It is proposed to hold a ball at Olympia during the Building Trades Exhibition on Friday, 23 September, in aid of the Architects' Unemployment Relief Fund. Mr. H. Greville Montgomery, the Director of the Exhibition, is generously providing everything in connection with the dance so that the entire proceeds may be given to the Fund. The organisation of the dance is in the hands of the Social Committee of the Institute under the chairmanship of Mrs. H. V. Lanchester. It is hoped that the date of the dance will be kept free from other engagements as far as possible, and that there will be a good attendance of members and their friends.

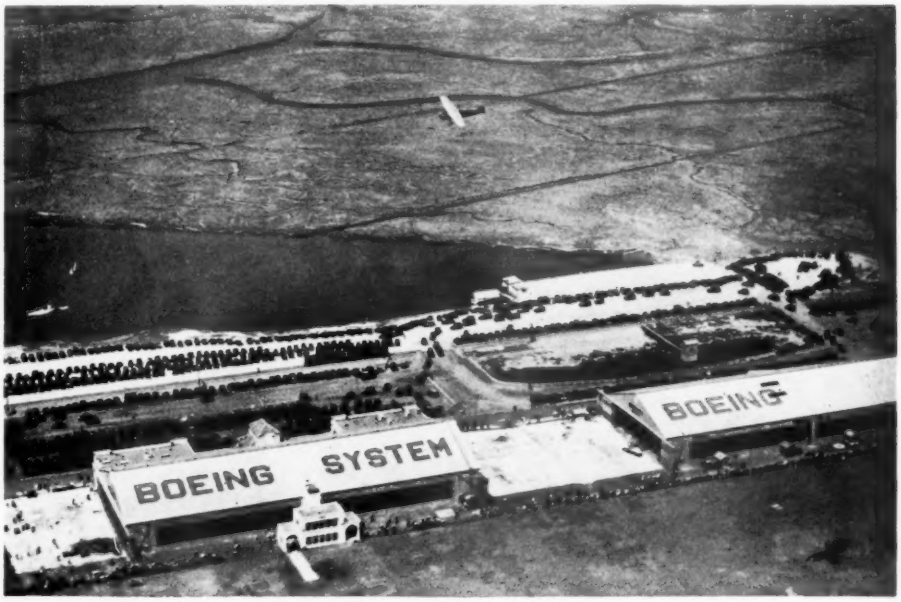
BURBANK TERMINAL BUILDING

At a recent meeting of the Chartered Surveyors' Institution, Mr. R. Fitzmaurice read a very interesting paper on the Causes, Consequence and Cure of Damp in Buildings. Damp in buildings is a frequent source of trouble to architects, and thorough prevention involves in some cases a knowledge of the movement of moisture in porous materials, which, at present, we only partially possess, the work of Mr. Fitzmaurice and others at the Building Research Station forms a valuable contribution to the solution of these difficult problems. Fungus attacks, mildew, paint failures, efflorescence and discolouration of decorations, cited by the author as defects due to damp, are all too well known to us.

Beginning with a study of the movement of water in materials, attention was drawn to the phenomena of capillarity and surface tension, and it was pointed out that though water in porous materials might be discontentious owing to irregularity in the pores, a suction force still existed, and that a finely-pored material would draw water from a coarse-pored material in contact, because of the former's greater capillary suction.

The author proceeded to apply these considerations to questions of evaporation and condensation, and then dealt in some detail with the practical aspects of damp exclusion.

Mr. Fitzmaurice's paper and the ensuing discussion are printed in the journal of the Chartered Surveyors' Institution for March and April. These can be seen in the Library.



LAND, AIR AND WATER: OAKLAND AIRPORT

AMERICAN AIRPORTS

A BRIEF REPORT ON THE DESIGN AND CONSTRUCTION OF CIVIL AIRPORTS IN THE UNITED STATES OF AMERICA

*THE GODWIN AND WIMPERIS BURSARY REPORT 1931**

BY GRAHAM R. DAWBARN [*F.*], M.A. CANTAB., M.I.STRUCT.E.

FOREWORD

WHILE mainly concentrating on Sections III and IV, which deal with the Layout and the Buildings, I have in the earlier pages of this report touched very briefly on the general position in America and on the more obvious site problems, since I do not consider that the architectural side can be put into a watertight compartment of its own.

One visit to America would scarcely justify a comprehensive treatise on their airports, but the report has emerged after ruthless pruning from an immense amount of material, and is, I hope sufficient to stimulate the imagination. I have as far as possible resisted the temptation to generalise and to formulate my own ideas (except in the very brief Conclusion), and have also deliberately avoided comparison with European practice.

The report would not have been written—at least, in its present form—without Mr. Nigel Norman. He was instrumental in obtaining the loan of Puss Moth C.F.—A.G.O., and in all piloted us over seven thousand miles; apart from this, he has for the last two years been my guide, philosopher and friend in all things aeronautical. I also wish to thank Mr. George Pynchon, Junior, for all his personal kindness and valuable introductions; the de Havilland Company of Canada and Mr. Loader their

*Mr. Dawbarn, who obtained his pilot's certificate during the war, in the autumn of 1931 travelled some 7,000 miles through America in a British light aeroplane in company with Mr. Nigel Norman. He presented this report in January, 1932, in his dual capacity of Godwin and Wimperis Bursar for 1931 and member of the R.I.B.A. Aerodromes Committee. It has here been found possible only to include 14 of the 83 illustrations originally presented and the text has been abridged where specific reference was made to illustrations not reproduced.

Manager, for placing the Puss Moth at our disposal; Mr. Birchtold and Mr. Bennett, of the Aeronautical Chamber of Commerce; Mr. Tichener, editor of "Aero Digest"; and Mr. Warner, editor of "Aviation," and the others who made our life easy in New York and helped us to plan our itinerary; and the managers and personnel at the various airports who gave up their time to our importunities, afforded us every facility, and loaded us with information.

The illustrations in the full report, deposited at the R.I.B.A. Library, consist of 68 photographs and 20 drawings; of the photographs, 27 are from my own negatives, 21 from Mr. Norman's, and the remaining 20 from prints collected from the various airport managers. The drawings have all been specially prepared by me for this report.

I. THE GENERAL POSITION

The Country Among all the countries of the world the United States of America, a young and energetic country with a population of 122,000,000, an area of nearly 3,750,000 square miles, and immense natural resources, which include a super-abundance of oil-fuel, appears most suitable for the early and rapid development of air transport.

The Need Communications govern history, and only the completion of the transcontinental railway permitted California to be governed from Washington. Since those days the speed of living has increased and communications quicker than those possible by railway have become a political and commercial necessity.

The Stimulus On 20 May 1927, Charles Lindbergh left Roosevelt Field on Long Island, landing thirty-three and a half hours later at Le Bourget. Although the Atlantic had been flown for the first time nearly eight years previously, Lindbergh's achievement fired the world, and, coinciding with a time of prosperity, initiated airport construction on a great scale throughout America. The normal airport development received a huge stimulus and big projects were started without sufficient knowledge or experience. Naturally money was in many cases spent wrongly and extravagantly, with the result that many airports were found later to be both inefficient and over-capitalised.

To-day, however, with nearly two thousand airports and landing fields scheduled by the Department of Commerce, America may be said to have bought her experience, and has probably a greater knowledge of airport requirements and design than any other nation.

Scheduled Transport The layout, design and detailed construction of any airport are naturally dependent on the purposes to be served by that particular port. In America the side of civil aviation which has so far developed most rapidly is the scheduled air line system. A year or two ago a letter posted in New York arrived at Los Angeles some five days later. Now mail aeroplanes, travelling night and day, cover the 2,450 miles from coast to coast in 24 hours at an average flying speed of 122 m.p.h. An ever-increasing network of air routes is developing, and already nearly four hundred thousand passengers (representing some 90 million passenger miles) and 4,000 tons of air mail are being carried each year. Services have recently been inaugurated between Newark and Philadelphia and between Los Angeles and San Francisco which run to schedules averaging nearly 180 miles an hour.

Government Assistance The part played by the Federal Government is considerable. Probably, their greatest service is the elaborate and highly efficient weather-reporting system, which is directly under their control. Air transport companies do not claim any direct subsidy, but their air-mail contracts are naturally of greatest assistance to them while night flying is becoming increasingly possible on a large scale by reason of the chains of beacons erected and maintained by the Government throughout the length and breadth of the country.

Private Flying Compared with scheduled services, purely private flying has made less rapid strides. Americans tend to become specialists: an American business man will gladly use an air line because he finds it to his advantage in his business and because he finds it more comfortable than any other means of travel; but with air lines always available, he is perhaps less inclined than the Englishman to spare the time to learn to fly simply for the sake of a new experience. Also, the American desire for speed coupled with the enthusiasm necessary for research has evolved high-speed aeroplanes which are naturally delicate to handle, and may, therefore, be hastily labelled unsafe. There are, of course, numerous individuals in industries connected with air who habitually travel in medium-sized aeroplanes, but the "Flying Club" for purely private as opposed to commercial owners is comparatively rare.

Air Line Ports Since the scheduled air line system is the most important branch of civil aviation, the largest and most fully developed ports are those which primarily exist for passenger and mail services. These may be owned by municipalities, by service companies (such as Curtiss Wright), or by operating companies themselves and their subsidiaries. In few cases only are they owned by independent private companies. In the case of municipal ports sites are either leased to service, operating, and manufacturing companies, who erect buildings to suit their own requirements, or, as at Los Angeles, Buffalo, and Oakland, buildings are all erected by the authorities and let on long lease at annual rents to the various tenants. In all cases, however, the municipality directly controls and administers the airport as a whole from an administration building, which is usually also the "terminal building." The ports with the greatest air line traffic are probably Newark, Chicago (municipal), Cleveland, and Glendale; Chicago having 96 scheduled movements a day while Glendale (Los Angeles) claims 62.

Intermediate Fields As direct corollaries to the air line port are intermediate landing grounds and emergency landing fields. The former, used mainly for refuelling by liners, usually contain one hangar with service facilities and a small "station" building, with boundary marking and lighting, a beacon set on a metal frame, an obstruction lights where necessary. The emergency landing field is usually without buildings other than a small hut in connection with the beacon.

Commercial Fields The largest and most fully developed "commercial" port from which no liner traffic operates is Roosevelt Field, on Long Island. This caters for private owners, manufacturers and sales organisations with a flying school immediately adjacent. It is one of the oldest aerodromes in America, and during the boom period gave occupation to a thousand people. At present it employes 400 and accommodates some 300 privately-owned aeroplanes. Other "commercial" airports worthy of note are Springfield, near Boston, and Le Roy, south of Rochester. The latter is a very beautiful aerodrome, which boasts the first government-approved flying school in the East, and though many miles from any large town, is a natural port of call for the private owner. On the main road near-by a large barn has been charmingly converted to cater as restaurant and dance hall for both road and air traffic, while golf links and other means of recreation are at hand.

Flying Clubs An instance of a flying club owning its own aerodrome is the Long Island Aviation Country Club, which has a grass field with double hangar and small clubhouse.

Manufacturers' Fields The last general type of aerodrome is that owned and maintained by a manufacturing company solely or mainly for test and experimental purposes. Probably the most famous of these is the Ford Aerodrome at Dearborn, near Detroit, while others visited include the Consolidated Airport at Buffalo (the home of the "Fleet" and "Fleetster"), the Wright Aerodrome (where the famous "Wright" engines are made), and the experimental station of the Kellett and Pitcairn autogyros, at Philadelphia. The private owner is allowed to land at all types of civil aerodrome, and service and hangarage is usually available.

II. THE SITE

Control by Authorities Although Airports may be "Rated" and licenced by the United States Department of Commerce there is at present no Federal Law under which sites of proposed airports must be approved before construction is put in hand and many flourishing ports have at present no rating at all. It is therefore natural that, in many cases, aerodromes have been started in unsuitable positions both under general considerations and in relation to neighbouring ports. This is more noticeable in heavily populated areas and flying round the environs of New York one is several times caught wondering why a particularly unpleasant-looking piece of land is, at great expense, being turned into an aerodrome when, almost a stone's-throw away, there is a fully-equipped and reasonably flourishing Port. A Regional plan is now being prepared for New York and surrounding country under which, no doubt, the suitable location of Airports will receive full consideration and it is to be hoped that similar steps will be taken in regard to other Metropolitan areas. I have before me a map of Los Angeles district on which are marked 24 Municipal or Commercial Aerodromes inside a circle of 15 miles' radius. To take another case there are two Airports almost adjoining on Alemeda Island near San Francisco, one or both of which must inevitably suffer.

Communications Generally speaking the principal (usually Municipal) Port is now five or ten miles from its City where this is of small or medium size. A good wide and not too congested road approach into town is the first essential, such as is obtained at Columbus where a fine broad avenue leads straight into the heart of the City. Port Columbus is also unique in having a covered connection (temporary at present, but shortly to be much improved) between its Terminal Building and adjoining railway station from which a shuttle service is run. At most airports special buses are run in connection with scheduled arrivals and departures of air-liners, while the private owner will often find that a taxi company, working under special arrangement with the authorities, will take him into town at a much reduced rate. Where possible, as at Indianapolis and Columbus, large areas are reserved for manufacturers immediately backing on to a railway with ample space for one or more groups of sidings. In some cases the main development of a town has been on one side of a river only, and a site for an airport has been found on the opposite bank in comparatively open country, yet five minutes from the heart of the city. Instances of this are the Municipal Aerodrome at Kansas City and the Hoover Airport at Washington—the latter a tragic case of arrested development due to lack of money on a site unrivalled in its road, river and rail facilities.

City Landings I found a general belief that the increased use of air-liners will demand airports close to the hearts of cities. Mr. Perry A. Fellows, Engineer-Manager of the Municipal Airport at Detroit and previously their City Engineer, has an interesting suggestion that double roads should radiate from the port, the spaces between each pair of roads being turfed and only broken by cross roads at reasonable intervals. A magnificent system of main arteries would thus be combined with emergency landing strips to suit any wind. One such double-road has already been constructed in connection with his own airport but complete realization must, I imagine, wait for a new town. To cater for large liners the strips would presumably be two or three hundred feet wide, but could be considerably narrower where light aeroplanes only were served. As in this country (I say this advisedly) no satisfactory proposal for roof-landings has yet been put forward though I heard of vague schemes in connection with the docks in

New York. This is a problem requiring closer co-operation between aviation and city authorities, aeronautical experts, engineers and architects than it has so far received. Attempts to moor a blimp to the landing mast of the Empire State Building, 1,248 feet above the New York pavement, have so far proved unsuccessful, though mails have been handled experimentally on one or two occasions. Lamson pneumatic tubes are being discussed as a means of speeding-up mails between aerodromes and post offices.

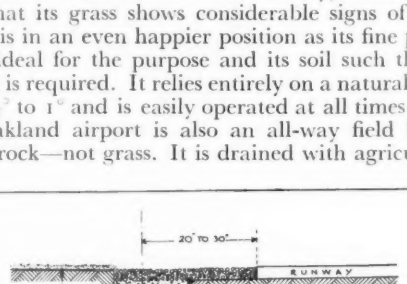
Country Ports Apart altogether from city airports there are aerodromes like Le Roy which are in the depths of the country and there seems a future for many such when a main motor-road is adjacent and restaurant and service facilities can supply the needs of travellers both by air and by road. At Victoryville, some eighty miles from Los Angeles, a road petrol-station gives eating and sleeping facilities to those arriving on the adjacent landing field. There are rumours of a great new company to be called "Air Harbours of America"' which will specialise in combined air-and-road hotels. This should prove a stimulus to private flying.

Identification Wrapped up in the question of site is the identification of aerodromes. Much help may be given to pilots by marking prominent buildings in neighbouring towns. These marks serve both as guides and as advertisements, and their use is rapidly spreading. The U.S. Chamber of Commerce advises marking the field itself with a circle at least 4 feet thick and 100 feet diameter and also requires that the name of the airport and the name of the city be placed on the roof of at least one outstanding airport building, recommending 10 feet to 30 feet high for the size of the letters. Where the name is also placed on the landing area it recommends that this is kept outside the circle (the space within the circle being reserved for information regarding right hand turns). Chrome yellow letters on a black background are considered to be most easily seen. In practice identifications vary considerably. Both Akron and Ford have enormous letters, those at Ford being 150 feet high but losing something of their visibility by reason of their extreme coarseness. The new municipal airport at Pittsburg has good north point and lettering—white on black ground—but seems to be unnecessarily verbose. On roofs, the problem of snow is solved by having raised letters which can be readily kept clear, while night flying is served by having neon strips an inch or so above each letter. This system is used, amongst other places, at Detroit, where the letters are 20 feet high and the neon lights operated on the selenium cell principle.

Obstructions Two other considerations affecting the site of an airport are flying obstructions and drainage. At Detroit the municipal airport may almost be said to be built round a huge gas container. This has so far caused no accident and during the exposition in April 1931, there were 256 movements in one hour and never less than 200 for seven consecutive hours. Ships landed on turf and took off on runways. Provided such obstructions are properly considered in the layout and are adequately painted and lighted so that they are easily visible by day or night there seems little danger attached to them. They are certainly much less dangerous than high-tension wires immediately adjoining the landing field or than badly placed wireless aerials, which have caused more than one death in Europe. Rising ground forms another type of obstruction. At the Lindbergh Field, San Diego, when the wind is from the east, one has rather an uncomfortable feeling of climbing over the town without gaining height, while the mountains near Glendale may demand a premature turn by a heavily laden ship.

Surfacing In England, our fields are without exception all-way fields of grass. In America, while some grass fields exist the majority of the larger ports have runways of a variety of materials and there are signs that the all-way "surfaced" field may shortly arrive (the nearest approach to this being the new municipal airport at Pittsburg). In a large part of the country good grass will not grow, while the northern areas are liable to heavy frosts which may open dangerous cracks on a grass field in which wheels or tail skids are caught. Apart, however, from climatic conditions, constant heavy traffic will wear away any grass and the resulting dust prove both dangerous and unpleasant.

Drainage Two notable all-way fields of grass are the municipal ports of Cleveland and Wichita. The former has a landing area of some 400 acres and is drained by over a million feet of french drain spaced 20 feet apart, 15 miles of 15 inch sewer (40 feet apart), and sixteen thousand feet of four-foot sewer. The discharge is into a ravine 240 feet below the aerodrome so that favourable conditions exist. It may, however, be added that its grass shows considerable signs of wear. Wichita is in an even happier position as its fine prairie grass is ideal for the purpose and its soil such that no drainage is required. It relies entirely on a natural grade of from $\frac{1}{2}°$ to $1°$ and is easily operated at all times of the year. Oakland airport is also an all-way field but of crushed rock—not grass. It is drained with agricultural



CONNECTION BETWEEN RUNWAY AND GRASS SUGGESTED BY THE U.S. DEPARTMENT OF COMMERCE

No. 1

pipes spaced 60 feet apart leading to two main 3 feet 6 inch diameter concrete drains, which empty into a sump from which the water is pumped out into the sea (high tide being about a foot above the field). One imagines that this would only be workable where the rainfall is comparatively small.

Runway Materials The ideal runway should be resilient (particularly for landing), dustless and economical both in first cost and maintenance. At Chicago Municipal airport the runways are of cinders, two or three feet deep and rolled many times. The result is not entirely satisfactory as the wind from propellers creates a particularly dirty dust. At Kansas City cinders are also used but, after consolidation, a top dressing of 60 per cent. asphalt and 40 per cent. oil is sprayed on. This prevents "rot" and makes a very fine surface. At Hamilton just over the Canadian Border, they are now laying runways as follows: 2 inch stone, 1 inch stone, Colas penetration, ½ inch stone, Colas penetration. At Port Columbus where the sub-soil is clay they have resorted to concrete; at Tulsa they are making them of 1 inch rock premixed with asphalt on a foundation of 3 inch rock. In sandy regions in the West, heavy crude oil is frequently rolled-in and a fine resilient cohesive surface obtained. Bakersfield is an instance of this.

Runway Edges Runways should obviously be formed with their edges flush with adjoining surfaces of the landing field and the runways themselves should be "crowned" to a height of perhaps 3 or 4 inches per hundred feet in width so that water may drain to the sides. The intersection between runway and grass is, therefore, a matter of some importance and illustration 1 shows the method suggested by the U.S. Department of Commerce.

Aprons As opposed to runways, aprons are generally of concrete to withstand petrol and oil. They are either drained independently or slope slightly away from the buildings, and are usually divided into rather large sections, those at Chicago being 20 feet by 12 feet.

III. THE LAYOUT

Airport Rating Airports are rated by the U.S. Department of Commerce under three heads: General equipment and facilities, effective landing area, and aeronautical lighting equipment. The highest possible rating is A.T.A. (T. standing for transport), but the highest usually given is A.I.A. I have before me the official pamphlet amended up to 1 September 1931, and give a brief summary of the main minimum requirements for an A.I.A. port:—

"A." Rating on general equipment and facilities.
- Hangar: 80 feet by 100 feet, with clear door opening 80 feet by 18 feet.
- Wind indicator: Cone or tee, 12 feet long.
- Day marking of obstructions: Alternate black bands half the width of chrome yellow or white bands.
- Repair service with specified equipment.
- Weather instruments and bulletin board, radio receiving set and loud speaker.
- Equipment for removing or packing snow (where necessary).
- First aid equipment. Fire appliances.
- Adequate personnel. Aircraft register.
- Waiting and rest rooms.
- Restaurant and sleeping quarters for three men, on the field or within half a mile.

"I." Rating on size of effective landing area.
- Two thousand five hundred feet of effective landing area in all directions, with clear approaches; *or* landing strips 2,500 feet long and 500 feet wide, to permit landing in eight directions (strips crossing at minimum angle of 40 degrees; *or* two landing strips (giving four-way landing, one against prevailing wind) 1,000 feet wide and 3,750 feet long (strips crossing at minimum angle of 60 degrees).

"A." Rating on aeronautical lighting equipment.
- This includes detailed information on the airport beacon, illuminated wind-direction indicator, boundary lights, obstruction lights, roof marking, ceiling projector, floodlight system, and personnel.

Size and Expansion In addition to the above there are certain basic requirements, which embrace identification, boundary marking, etc., and include services and accessibility. The effective landing areas are based on climbing ratios of 10 to 1 for "T" rating (Transport) and 7 to 1 for remainder, all at sea level. Curves are given showing safe climbing ratios and increased runs required for altitudes up to 10,000 feet. It is emphasised (in other publications) that requirements are minimum, and that, where possible, additional land should be available so that landing areas may be later substantially increased. Municipalities are generally alive to this, and in many cases splendid provision for increased area has been made. The Municipal Port at Chicago is at present only 160 acres, of which 100 is effective landing area, but in six months the area will be increased to 300 acres, while ultimately 640 will be available. Kansas City has a total area of some 800 acres, of which half is at present developed; Oakland has allocated a total site of 850 acres, of which 260 are now in operation. At Indianapolis the present field is 266 acres out of a total of 947 available for ultimate development—which would naturally include the air planning of the country immediately surrounding the landing field.

Prevailing Winds In less important aerodromes such as intermediate and emergency landing fields, prevailing winds are taken largely into consideration, and many interesting shapes are obtained. One of the most economical forms for this purpose are two broad strips at right angles thickened where they join.

Ocean Flights Ocean flights have received special consideration. These flights are usually started in the very early morning, when there is no wind and a pre-determined taking-off strip can be used. All Atlantic flyers except Boardman have so far used a

specially prepared strip at Roosevelt Field, which is over a mile long, with ample extra length if the aeroplane does not rise. A strip 7,000 feet long and 600 feet wide at the far end was used at Oakland for Pacific flights. This is not at present maintained, but could be prepared at short notice.

Runways From an aeronautical point of view the general adoption of runways is a matter of argument, but many managers claim that they simplify control and that transport pilots insist upon

No. 2.—Shushan Airport, New Orleans

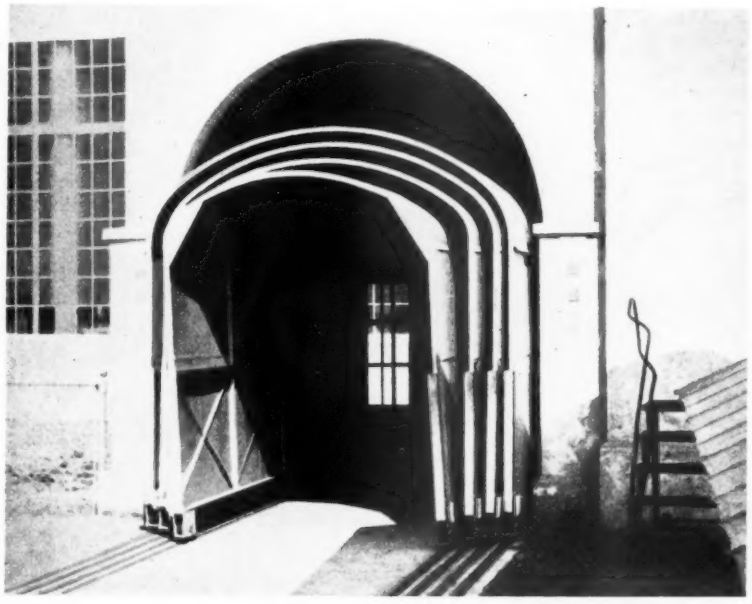
them. They all, however, emphasise that in any given direction it is useless to rely entirely on one runway 100 feet wide. If landing and taking-off are on parallel runways, then the centres of the two strips must be 300 feet to 500 feet apart; while if one runway is used for both purposes, it should be at least 500 feet wide. The enormous traffic during the "Exposition" at Detroit was carried out without accident by aeroplanes landing on grass and taking-off by runways. On the other hand, Major Berry, manager at Cleveland, stoutly upholds the all-way field where this is possible, and claims Cleveland as one of the few fields in America where aeroplanes can land in formation. The "patterns" of runways in conjunction with aprons or taxi strips is a matter of many considerations: the Star and its corollary the Union Jack are obvious but definitely unsatisfactory forms, being relatively extravagant in surfacing and making an efficient layout almost impossible. The general form of the Shushan Port now under construction at New Orleans (illustration 2) is more economical and provides an almost ideal site for main buildings in the re-entrant at the top with ample space for manufacturers, etc., down either flank. The building at the apex of the main development may be of considerable height without creating a dangerous obstruction, a point of some importance, since high control buildings have definite advantages, and it is begging the whole question of airport layout to stipulate that all buildings should be low. A still more economical form as far as surfacing goes, and one which might well be extensively used in open areas where eight-way landing is required but extensive ground development is not anticipated is obtained by correctly superimposing a "V" over a "T." The layout of any particular site is emphatically a problem on its own, but one of the first essentials is obviously to keep the servicing and loading aprons clear of the runways.

Boundary Marking Boundary markings usually consist of cones not more than 300 feet apart, slightly off the ground, so that a sickle may cut away vegetation under them; at angles raised strips of inclined boards are also used, and in some cases these boards are used throughout. In some ways these are preferable, as the eye more easily follows a series of strips than a series of spots. Lighting is usually yellow with red to indicate obstructions; day painting in chrome yellow and black, though against most backgrounds chrome yellow alone seems more easily visible. On a fully developed port lights are also used to indicate runways, a complete system of sunk lighting having been successfully installed at Port Columbus by which any runway can be outlined at will.

Lighting The station beacon is usually a revolving beacon or a flashing fixed beacon placed above the control tower or in other conspicuous position. There are two main systems of flood lighting in operation. In the first, several banks of lights are used, and only that bank turned on which is behind the pilot as he lands. In the second system one large light only is used. It is obvious that in certain winds this would shine straight on to the pilot and dazzle him. The solution is by shielding either by body or by a bar moved across the light to keep the aeroplane in shadow as it lands. A factor to be considered is traffic on adjoining roads which must not be dazzled and this may determine (as at Detroit) which system is used. The single light is sometimes placed in a building of its own (as at Wichita), but more usually is immediately accessible from the control tower from which boundary lights, runway lights, obstruction lights, identification lights, illuminated wind-indicators, beacon, floodlights and ceiling lights are all operated.

Wind Indicators The old type "sausage" is still used extensively as a subsidiary wind indicator while his brother, consisting of one short cone and one long cone, is becoming popular; the short cone being illuminated red and the other white. At Detroit this indicator is mounted on a steel framework, the upper portion of which can swing so that the indicator may readily be taken down for repairs. Of the pivoted types (which lack the advantage of indicating speed as well as direction) the most general is the "T" which is frequently illuminated by neon strips, while a fairly recent development of this is the "ship," which

consists of a doped canvas body on framing, reminiscent of an airship in shape, with a horizontal wing at one end and a fixed vertical rudder at the other. This "rides" well and gives the effect of a "T" from above. It may be neon lit or flood lit. These last two types are now generally made so that they swing to the direction down which landing is easiest when the wind is below about 4 m.p.h. In some airports indicators are lighted green except when landing is dangerous, they are then red. At one airport at least—to our own slight confusion—it is permanently red, and some universal system should be adopted. There is one other type of indicator, the "smudge - pot." Burbank (California) claims to have originated this, but the type has, of course, been in general use in Germany for some years. The smoke stack projects about 2 in. above the level of the fields, and it burns five quarts of fuel oil per hour.



No. 3.—A Typical Loading Canopy

Hangar Layouts Once the aeronautical requirements of the field are satisfied the most important considerations are fuelling and hangarage. In America there are in general two types of hangar layout: the first a long line of hangars, either isolated, as at Chicago, or more or less continuous, as at San Francisco Bay Aerodrome, with openings direct on to the field and stores and offices at sides or rear; the second a series of hangars each opening on to paved aprons on either side, with subsidiary rooms back and front. Mr. Kenneth Franzheim, the New York architect, has used the latter layout extensively at Valley Stream, Roosevelt Field, and elsewhere, while other airports laid out on this principle include Oakland and Floyd Bennett. Floyd Bennett has indeed gone a step further by introducing a second chain behind the first—a logical development which reduces the aerodrome frontage per hangar, but implies a crossing of road and air traffic. One advantage of this method is that dust is less likely to enter the hangars—a by no means negligible point on some landing grounds. A further gain is that aircraft may be handled outside the area of the main field. In America (possibly because it is the land of automobiles) the advantages of a compact layout are not always appreciated, as at Tuscon, where the charming little Station Building must be a good quarter of a mile from the only hangar. When the hangar with openings both sides is used as an air-line station, the problem arises of bringing the passenger from the entrance side to the landing field: several solutions have been attempted, which will be described in Section IV.

Fuelling Fuelling at large airports is usually from sunk containers or by mobile lorries. That is to say, the aeroplane is either brought to the fuel, or the fuel is brought to the aeroplane. Lorries are sometimes regarded as hazards on really busy ports but are probably more efficient unless there are a number of pits in convenient positions. At Oakland each pit has three hoses—for gasoline, water and oil. These are operated from the pit but controls and compressors are in small huts, each pit-and-hut unit dealing with separate brands by separate companies. The pits, the flap covers of which are generally an inch or two above the apron, are well marked with paint—those at Detroit having yellow squares round them with GAS in large yellow letters. Fuelling points can thus be seen before landing. Pylons, such as are sometimes seen in England and on the Continent, are never used.

Passenger Requirements The air-line passenger has definite requirements which a good layout should fulfil. The passenger "Station" is sometimes incorporated in the building operated by a particular line but more often forms part of that building for which there is as yet no fixed name but which will here be called the "Terminal Building." Here he will expect to find

restaurant, lavatory accommodation, telephones, telegraph, cable and post office facilities, a good rest room or waiting room and possibly (if he is lucky) sleeping accommodation to permit an early start. His approach by road, rail or car must not touch the landing field or cross the path of taxi-ing aeroplanes but he should be able (with his luggage) to pass from his train or car to the waiting room and from the waiting room to the aeroplane under cover all the time. It is possible that more than one liner will arrive and depart at the same time and, to avoid delay, these must be able to unload and reload independently. At Cleveland the waiting hall gives direct access to an open semi-circular space known as the "bull-pen," the base of which is the terminal building and the remainder a steel and wire fence with three gates. Aircraft operated by any particular line draws up by one of the gates and, owing to the semi-circular shape of the fence, three liners can operate at once. Liners in America are usually high-winged monoplanes which can be so manœuvred that, with the wing projecting into the bull-pen, the cabin door is directly opposite the gate. These machines are manipulated with amazing precision: at Buffalo lines are painted on the tarmac on which the wheels of the aeroplane run as she swings round into position, the inner wheel actually turning a semi-circle of five foot radius. Chocks are here placed in position at the ends of the lines and the ship stops accurately to the last inch. At most ports, however, there is a notable absence of chocks. A recent improvement by which the passenger and his luggage are entirely protected throughout is the "loading canopy." This is on the telescope principle and, as soon as the liner stops in position, is run out on rails to within a few inches of the cabin door. These are installed at Burbank and Oakland amongst other airports (illustration 3), while at Indianapolis provision is made for three on the bull-pen or radiating principle, two of which are now in operation.

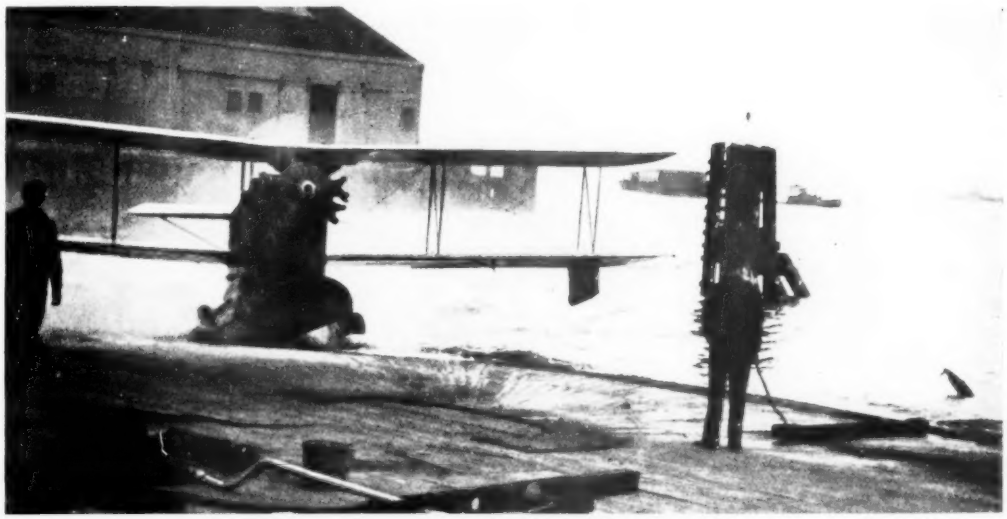
As air transport develops managers foresee that the need for "connections" will lead to "peak hours" when a considerable number of liners are on the field at once. Major Centner, manager of Port Columbus, is preparing a report on the possibility of a series of tunnels leading to various spots on the field so that each liner can operate without hindrance from others. Personally I hope that other schemes will mature, as the steps or inclines inseparable from this proposal must be regarded as a drawback when dealing with goods or with passengers who are aged or infirm.

General Public The tendency in America is for Municipalities to regard their airports as public amenities in the same category as parks and in several cases they are being town-planned in conjunction. The public, even when arriving in cars, are rarely charged admission except on special occasions and full advantage is taken of this concession. At Oakland, during the boom of 1928, thirty or forty thousand people used to visit the port on a Sunday and provision is made for parking three or four thousand cars, each with full view of the field. At Indianapolis the number of Sunday visitors is now between five and ten thousand. Naturally "joy-hopping" is a great attraction, the right to operate being let off by the airport owners. At Floyd Bennett, the new municipal port of New York, concessions are let on a 10 per cent. basis. Quite famous pilots are employed by operating companies and as many as 2,200 people have been up in one day on $2.50 rides. The average for Sundays being 800. Roosevelt Field has produced an interesting system of "bleachers" (or stands for spectators) and car pens involving a minimum of supervision, three or four thousand people being able to see the whole aerodrome from their cars, the whole falling within the "dead" area (aeronautically speaking) formed by adjoining buildings. At Cleveland there is a large grand-stand, reminiscent of Epsom, on the side of the field furthest from the other buildings while, though I did not see it, I understand that at Glenview, Chicago, there is a pukka grand-stand on top of an enormous hangar. Considerable sanitary accommodation is, of course, necessary, and with the American's genius for a pithy phrase these are labelled "Comfort Stations."

Recreation Facilities There is a tendency to introduce various forms of recreation in conjunction with airports. Los Angeles Municipal Airport has a great scheme for future development which includes golf links, tennis courts, swimming pool, field for football and baseball, children's play areas and picnic lawns, all in a park-like setting of trees and grass. Fine as this conception is, one feels that even more might have been made of it. The position of the golf links is, no doubt, valuable in preserving an open space to the north of the field—otherwise it would be better on the south side, as watching aeroplanes land and take-off is not particularly beneficial to one's game and it is pleasant to walk from the service hangar or fuelling points more or less straight on to the course. The main approach, too, is a little lacking in form for so large a scheme. At Le Roy, which has previously been mentioned, the private owner will find golf, baseball, polo, a driving range and racing all within a few hundred yards. At Akron a wooded hill overlooking the field is being developed as a picnic area, with gas laid on for boiling kettles! An elaborate and interesting piece of road planning is contemplated here to cope with the anticipated traffic.

Administration Lighting and radio control is usually (though not inevitably) carried out in a room at the top of the terminal building, which also houses the U.S. Weather Bureau (usual requirements: enquiry room and teletype room, with immediate access to roof space for balloon observations for "winds aloft"), post office "mail" department which should be in close touch with the liners, and airport manager with his staff.

Schools and Manufacturers Other main activities include schools and manufacturers. Save at Roosevelt Field, where the school aerodrome adjoins the main aerodrome (their machines have flown two million miles in the last two years without a



No. 4.—Amphibian climbing on to Button Island

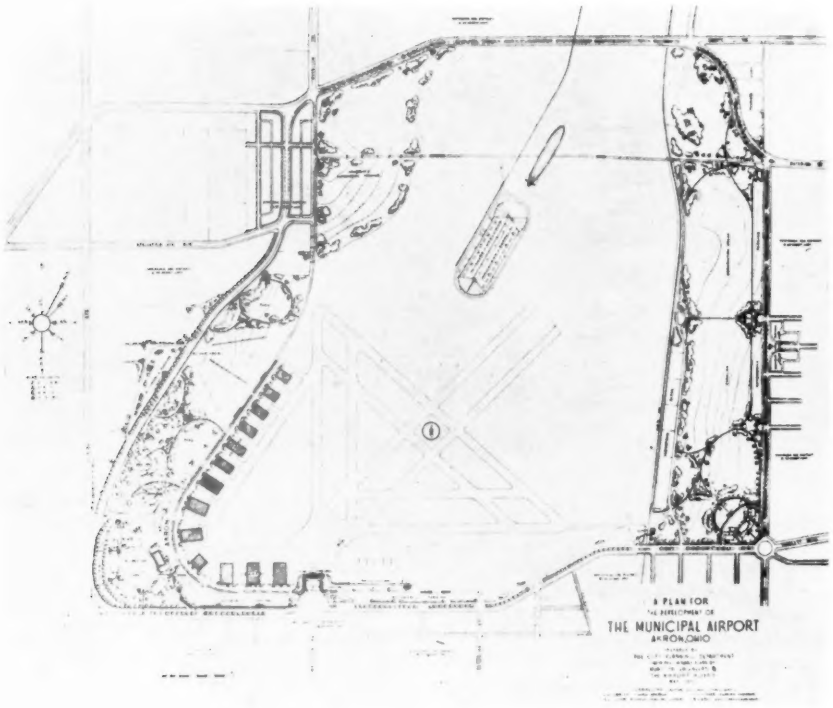
forced landing), schools usually operate in conjunction with other traffic. The tendency is, however, to suggest, on scores of safety and lack of interruption, that they should have their own completely independent aerodromes. Generally they are not desired on fields carrying heavy liner traffic, though the Boeing School of Aviation —probably the most famous school in America—has its headquarters at Oakland airport. Aerodrome frontage is usually reserved for manufacturers away from other activities with, if possible, rail and river as well as road communications.

Amphibians The really complete airport is that which caters for aeroplanes, amphibians or seaplanes, and lighter-than-air craft. Provision is being made for all three at Floyd Bennett where a runway 5,400 feet long is now being constructed which will terminate in the water. Amphibians are at present used only to a very limited extent, though geographical conditions make their increased use certain in some areas. An amphibian leaves San Francisco Bay aerodrome (at Alemeda Island on the Oakland side of the bay), landing in the water and running up on to a "button island" connected by wooden steps or ramps with one of the piers two minutes from the heart of San Francisco city. This means an immense saving of time for those arriving by air, as a landing field can never be possible in so favourable a position. Illustration 4 shows the arrival of a machine.

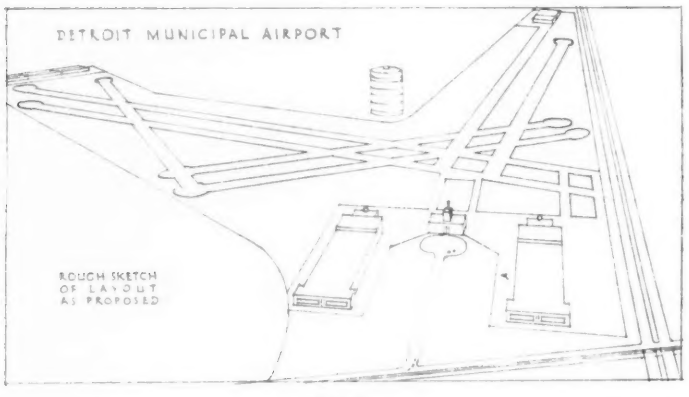
Services, etc. Other layout considerations are hotels (as at Roosevelt Field and Oakland), garages, shops and showrooms, and buildings for centralised service supplies. Operating companies usually heat their own buildings though there are schemes by which a central building heats by exhaust steam after live steam has generated the electricity. Such a building is proposed at Buffalo Municipal Airport and already exists at Wayne County Airport, where steam runs underground at high pressure for some 1,200 feet. There is at present a curious absence of shops and showrooms on airports, apart from the stalls in terminal buildings where postcards and photographs are sold.

Layout of Burbank In selecting layouts of airports I have, while ignoring purely theoretical conceptions such as the prize-winners in the Le-High Competition of 1929, generally chosen illustrations which show proposed complete developments since few airports are built in one operation but are planned rather as small towns for expansion as far as this can be foreseen in all or any of their numerous activities. The United Airport at Burbank is one of the few that was completed in all main essentials in a short space of time. In the course of development from the original plan the runways have been improved and an additional one added to obtain No. 1 rating. The axial connection with the adjoining park is a pleasant piece of town planning, while the whole layout will be most effective when fully developed.

Layout of Akron Illustration 5 shows the proposed development at Akron involving considerable town planning around the airport, and a new 100 foot road along the crest of the hill on the left which continues as a boulevard round the whole port. The longest runways practically align with the direction of the prevailing wind (see wind-rose) and a great feature of the plan is that all runways are well clear of the taxiway which runs along the field side



No. 5.—Plan of proposed development at Akron, Ohio



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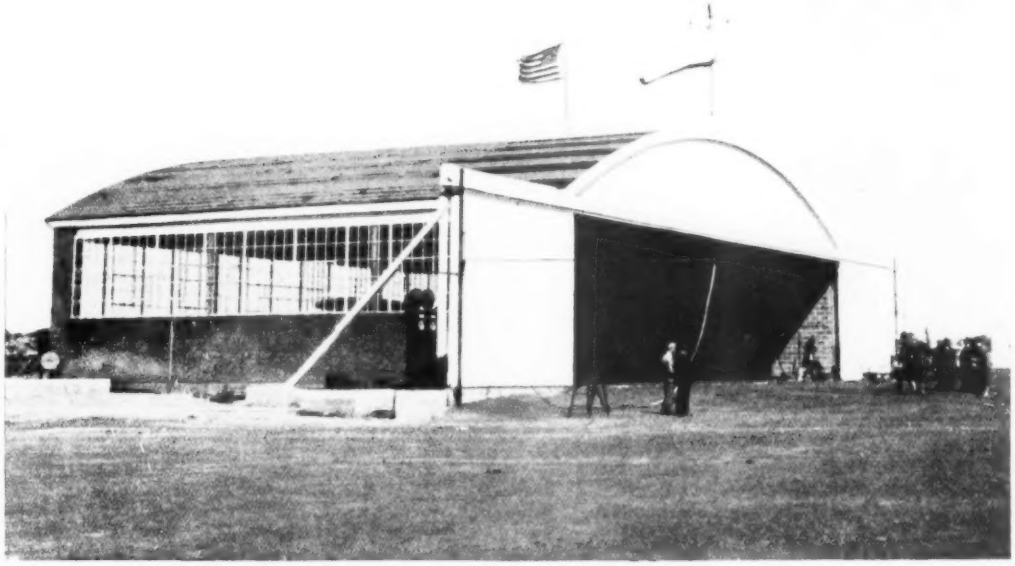


No. 7.—The Hangar at Schenectady

of the hangars. The hangars themselves are on the both-side-open principle, so that the taxi-ways in their turn are always clear. The parallel runways are each 100 feet wide with 400 feet between centres. The plan shows the "Akron" airship emerging from its hangar which is placed well clear of flight-ways though pointing at the terminal building. The splendid provision for car parking, observation and picnic areas may be noted—all on a prodigal scale. The position of the service stations on the right of the terminal buildings away from the hangars is interesting, while the hangars themselves are well placed in the dead area formed by the hill. The service road running along the base of the hill with direct access to every hangar and the complete isolation of road and air traffic help to make this a really splendid conception in which natural difficulties have been utilised actually to improve the scheme.

Layout of Detroit The layout of the municipal airport at Detroit shows clever use of prevailing winds on a difficult site round a formidable obstacle. Illustration 6 gives the final scheme. This sketch is not absolutely accurate, as it is made up from photographs and sketches, but it illustrates a most interesting solution in which the main hangars (of colossal size) lie with double access and double aprons on either side of the approach road which leads straight to the terminal building, the landing field being beyond. This is in effect a self-contained spur of passenger and road traffic surrounded on three sides by air activities and to my mind is both efficient in its concentration of services, and also forms a magnificent axial layout from the adjoining main road. Manufacturers are isolated at the far ends of the long runways.

Layout of Chicago In contrast to this is the municipal airport at Chicago, where the ultimate scheme is a large rectangular field on the Union Jack principle, set in a still larger rectangle of public city roads. Between the field and the roads are a series of sites generally 200 feet deep in units 120 feet wide, and these are leased to various service, operating and manufacturing companies. The new terminal building merely occupies a rather wider site than most of the others, and is not on any axis. Each company puts up buildings to its own design, and the result is as incoherent as the development of the neighbouring suburbs.

Layout of Indianapolis In the future layout at Indianapolis, the arrangement of the hangars on either side of the approach road is reminiscent of Detroit, with presumably aeroplane access on one side and road access on the other. Manufacturers are entirely isolated with their own road approach, and even their own administration and control building. The splendid rail connection has been mentioned before. Some of the cleared "traffic lanes" seem unnecessarily long, and the shortest, which is curiously enough in the direction of the prevailing wind, is a mile. On paper, at least, the layout lacks the beauty of Akron.

No. 8.—A Hangar at Roosevelt Field

IV. THE BUILDINGS

The simple Hangar

Reduced to its simplest form the hangar is a box one side of which can open. Its fundamental requirements are that it is weather-proof and adequately lit, that its floor is as unobstructed as possible, and that aeroplanes can be taken in and out quickly and easily. As an aeroplane garage, its capacity is measured by its unobstructed door opening, and the floor area over which there is a a clear height equal to that of the door. The problem—for a simple hangar—is therefore remarkably exact, and its solution is admirably shown in illustration 7 which was taken at Schenectady. Here the doors slide outwards, leaving an opening the full width of the building, and with unobstructed height up to the underside of the belfast truss. Above the doors a sloping projection keeps off the rain and is carried on either side across the wings which are simple skeletons of wood to steady the doors and resist wind pressure when they are open. The remaining three sides are mainly of glass, while the curved roof is felt on boarding. The ground falls away from the doors, so that there is no danger of flooding.

As a variant of the "box," the Germans have evolved the remarkable ingenuous "lamella," but for a simple hangar this shape is not completely efficient, and I do not believe that one exists in all America.

The next stage

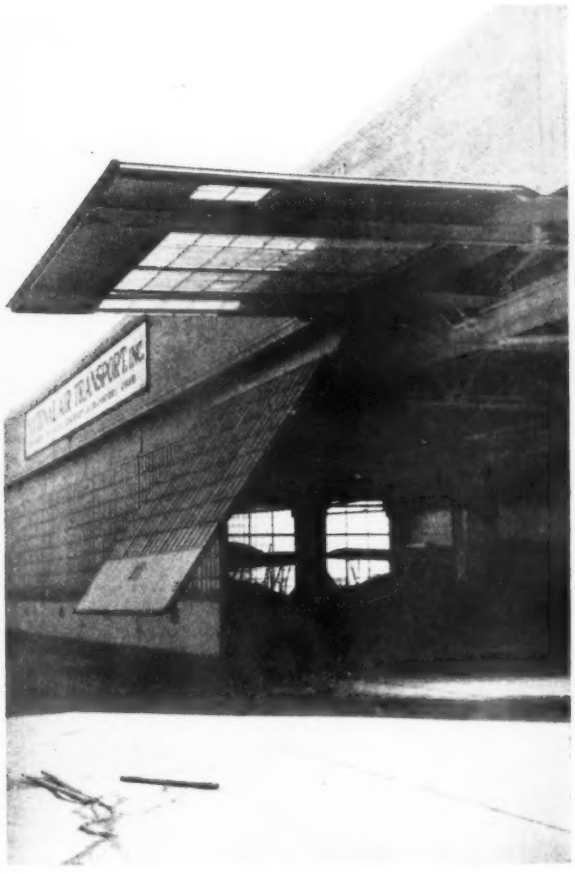
The next stage in hangar development (at Long Island Aviation County Clubs) is roughly for two of the Schenectady hangars to be joined together with a low store-and-office lean-to added. The doors here are glazed as are practically all hangar doors in America. It also is of timber construction, and for a small hangar where expense must be considered, there seems little to be said against this, with the all-important proviso that doors must be operated easily and machines quickly cleared. In passing, it is worth noting that light aeroplanes in America do not have folding wings; they have, therefore, no use for the "lock-up" type of hangar developed by Messrs. Airwork and extensively used at Heston.

The Double Access Hangar

The hangar at Oakland airport, though simple in form, is much larger than those previously mentioned, and is, in common with all those to be referred to later, of fire-resisting construction. This hangar has a clear floor area of 122 feet by 200 feet with one long side facing the aerodrome, continuous doors at both ends (sliding into open wings as before) and a lean-to of machine shops, stores and offices on to the road, just visible on the right of the picture. Its roof is of corrugated iron, supported on light steel trusses which rest on stanchions spaced at intervals down the sides. Its floor is of concrete in 15 feet squares.

The Complete Hangar

This brings us to what I will call the "Complete Hangar," which is a hangar unit designed to be let off to an operating or manufacturing company complete with offices, machine shop, heating plant, and full lavatory accommodation. Illustration 8 gives a general view of such a building—one of a row of seven recently built at Roosevelt Field—from the design of Kenneth Franzheim. There are again, continuous doors at each end of the building, one side of which faces the aerodrome and the other a private service road. The walls are of stuccoed brick and the doors slide into solid wings. Roof lighting is very rare in America, and these hangars are lit by the glazed



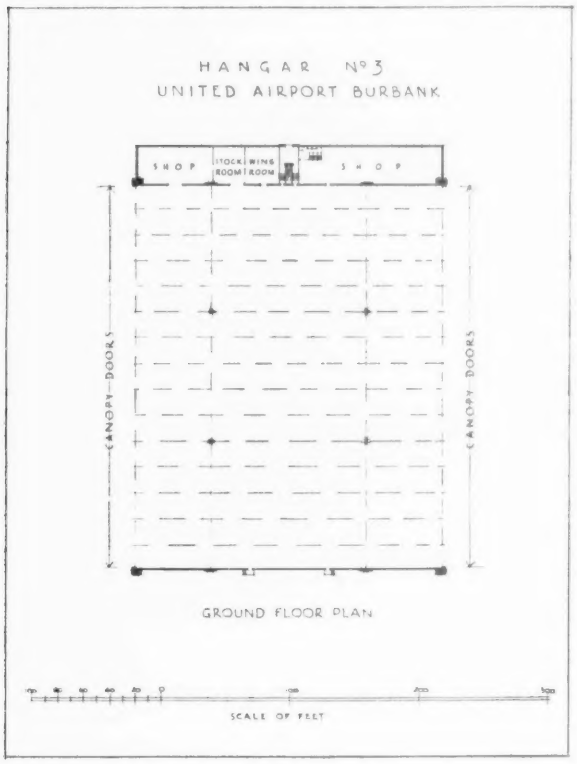
Nos. 9 and 10.—Doors of National Air Transport Hangar at Cleveland

doors and by clerestorey lights down each side. One of the buildings houses the Airport Administration, and here the offices are two storeys high down each side, the hangar relying on light solely from the glass doors—adequate for garaging though probably not for repairs. The rent of these "Complete Hangars" is £130 a month, excluding heating. One is occupied by the School: in this case the first floor offices become rest rooms opening pleasantly on to the roof "promenade." At Buffalo, a hangar with total floor area of some 23,000 feet super is leased by the municipality to Colonial Flying Services for £1,000 per annum.

The "Luxury Hangar"

The United Airlines' hangar at Kansas City is an instance of a hangar unit built by the company that operates it. Its offices face the aerodrome, and there are again continuous doors at each end. This building, however, designed by the Austin Company of Cleveland, is of a much more highly developed form of construction. Though each end is a continuous door, the roof trusses run at right angles to them, cantilevering out from supports near the centre of the hangar which is comparatively small—130 feet by 120 feet. The roof is of ribbed steel —~—~—~—~— 2 inch celotex, tar-paper and gravel, which provides admirable insulation. The purlins, with 14 foot span, are in the form of lattice girders some 9 inches deep overall, formed of small angles reinforced by a "lattice" of stout wire. The doors, instead of sliding, are top-hung to open outwards. They are divided into sections, and each section can be opened independently or the whole opened in one simply by touching a switch. The power is from a 3 h.p. motor. Though one cannot express pleasure at the use of an order (even in the "Colonial style") on an airport, this is a handsome building well calculated to advertise its owners. Its total cost was £25,000. More successful

architecturally is the National Air Transport hangar at Cleveland, also by the Austin Company. This is really a beautiful building. Here the long side opens on to the aerodrome. The roof is again cantilevered off one central stanchion, and the doors form a continuous



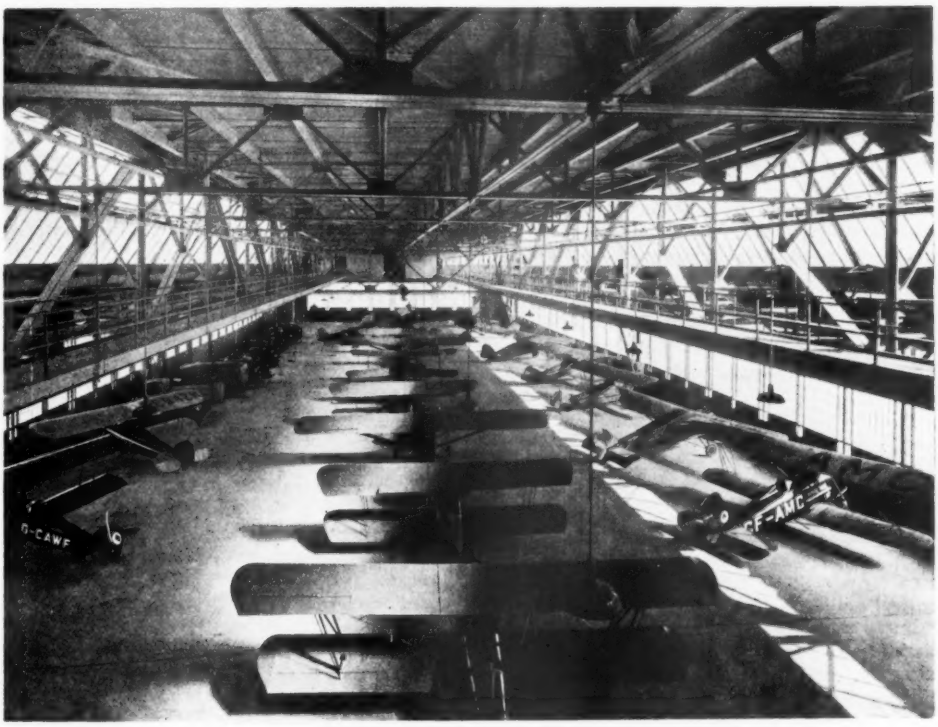
No. 11

opening over two hundred feet long by twenty feet high. they stop automatically when they are horizontal 50 seconds after the switch has been pressed. Illustrations 9 and 10 show two views of these doors, one from inside with all units closed, and one from outside showing how each section can be independently operated.

The Super-Hangar Probably the largest hangar of this type in the world is the new hangar at the United Airport, Burbank—another product of the Austin Company, who were responsible for the design and construction of the whole of this airport. The main building is 311 feet by 246 feet with the upward-swing doors (known as the Clear Open Canopy type) down the full length of both long sides. One end faces a runway, and at the other a two-storey office block has just been built. A sketch-plan of the completed building is shown in illustration 11. It will be seen that the hangar is only obstructed by four stanchions, and that the cantilevers which support the doors project sixty feet. Thus, even if the span of an aeroplane is more than the distance between stanchions, it can still be put in tail first and adequately protected. Four hundred tons of steel have been used. The doors consist of twelve units each twenty-five feet wide down each side, with a clearance of 22 feet. The cost of the whole building, including the office block, was £35,000. This hangar would house twenty-five Ford trimotors or five machines each as large as Do X. The aeronautics branch of the U.S. Chamber of Commerce gives the present cost of hangars at between $1.50 and $5.50 (that is 6s. and 22s.) per square foot, so that this building, in view of its quality, may be regarded as relatively economical.

Hangar Doors There is a complete absence of folding doors in America. In addition, however, to the two main types mentioned above there are several instances of a row of detached leaves, packing like cards each end at right angles to the opening by means of carefully curved guide rails (Consolidated Airport at Buffalo). At the School Hangar at Clevelend there is a variant of the "round-the-corner" system. At one of the hangars at Buffalo Municipal Airport there is a curious method by which four roller shutters are held in position by three uprights. To form an opening the shutters are first rolled and the uprights then pushed to the ends of the opening. This cannot compare very favourably with other methods in the matter of speed. Where hangars are fire-resisting, their doors are always metal. At several ports, Floyd Bennett amongst them, aluminium is used, resulting in light doors which are easily operated. At Detroit, where there are huge sliding doors, the first section to be opened is electrically operated; a small Ford tractor then butts up against the next section and, as it moves, picks up each section until an opening of the required width is obtained.

Exposition Hangar, Detroit This main hangar at the Detroit Municipal Airport is in actual fact, I believe, the largest aeroplane hangar in America. It was built, however, to serve the dual purpose of hangar and exposition hall, the great aircraft show being held in it in April, 1931, for the first time. Its floor area is 185,000 square feet, excluding part which is temporarily occupied by station and administration. Its enormous roof is finished with a tar compound mopped on over felt which was laid on a precast concrete with a burnt clay aggregate. Its total cost approached £200,000. In the galleries are batteries of pneumatic deluge valves for fire protection, a subject which has been amply studied in most of the large hangars of America. In this case the fire plant, which operates sprays both from floor and ceiling, is put in action by *rate* of rise of temperature. Steel curtains, run at intervals across the building to prevent the fire being blown at high level into other sections. During recent tests petrol was ignited and the fires extinguished by the sprays in 30 to 35 seconds.



No. 12.—Interior of the Wayne County Airport Main Building

Hangar Heating

Very low temperatures are experienced in winter over a large part of the country, and hangar heating has been well studied. Somewhat unexpectedly heating by gas is generally recognised as safest and cleanest, though somewhat expensive. This is employed at the Curtiss Field at Valley Stream. Cold air is drawn from the hangar at a low level, warmed, and passed out through ducts supported by the steel roof trusses, power being obtained from a 5 h.p. motor for the hangar (something over 10,000 feet super), while a 3 h.p. motor serves the offices. At the Ford Airport, Dearborn, where this method is employed, the mistake was made of blowing the warmed air outwards from four openings high up in the centre of the hangar; to be most efficient the warmed air should come inwards from over the door openings.

The Station Hangar

Operating companies sometimes—though not often—combine their air-line passenger stations with their hangars. A notable instance of this is the Boeing hangar at Oakland, which also houses its famous school. The headpiece (p. 641) shows the aerodrome side of this hangar (the loading canopy being just visible above the concrete walking strip). This hangar is of the open-both-ends type, and the problem arises of how best to lead passengers from road to flying field. It is solved by taking them up two flights of stairs, across a bridge inside the hanger, and down one flight into an observation lounge —a charming room with fine view of the field nearly compensating for the effort of the stairs. Here passengers can sit at their ease until their aeroplane draws up under them, when they go down one flight of stairs and along the loading canopy into their machine. Mails are taken into a room behind the loading canopy, thence by car round the hangar. There are eight schedules in and eight out each day. The hangar itself is 122 ft. by 300 ft. with, as one imagines, an unnecessarily high door clearance of twenty-five feet. In this connection the main hangar at Wichita, which has a door clearance of only eighteen feet, has housed the F.32, the largest land plane now built in America. Where the doors of station-hangars face the aerodrome the problem is much simpler; at the San Francisco Bay Aerodrome passengers enter a passage at the rear or road side which leads them into a waiting lounge facing the aerodrome between two sections of hangar.

The Terminal Hangar

Smaller airports have sometimes only one main building, which includes hangar, administration and control, as at Le Roy, and may also include restaurant facilities, as at English Field, Amarillo. This principle is also adopted at some of the larger ports. At Wichita a large terminal building is now in course of erection (though temporarily held up), but meanwhile one main building serves as hangar, station, and administration; the hangar with sliding doors down both sides having operating company's offices at one end and airport manager and weather bureau at the other. The steelwork has been made strong enough for a floor to be laid on the lower members of the roof trusses, and it is intended later to utilise this space for storage and possibly even for offices. I feel sure that this is right in theory in really large hangars, as the height above the tops of the doors is quite valueless for hangarage, and is usually waste space.

Wayne County Terminal Hangar

The main building at Wayne County Airport follows the same principle as that at Wichita, but in a larger and more fully developed way. Illustration 12 gives a most impressive view of the interior. The whole of the ground floor is hangar space: some 434 ft. by 128 ft., with two openings each 157 ft. wide down each side and a 90 ft. opening at each end. A concrete apron 125 ft. wide surrounds the building and aeroplanes have, therefore, almost continuous access on any four sides. Lifts lead to lounge, offices for administration and for operating companies, bedrooms, restaurant, etc., on the first floor at either end of the building, connected internally by two galleries running the length of the hangar: while on the second floor is control tower at one end and weather bureau tower at the other. In practice three sides only are normally used for aeroplane traffic, the fourth, facing the approach road, being reserved for motor cars. The principle, therefore, somewhat follows the Boeing building at Oakland, but this is undoubtedly the more impressive building. Considerable portions of the roofs are tiled as observation promenades.

The roof construction of the central portion is interesting. Three lattice girders cross the building: one in the centre and one on the inside of each end block. On these are supported the transverse girders, which in their turn support the roof both directly and by subsidiary trusses. The natural lighting by the continuous glazed doors and the inclined roof lights is extremely good, and the complete absence of internal supports is worthy of note. Here is a building which under an entirely different method rivals in engineering imagination the Austin hangars previously mentioned. Save for an observation platform in the centre of the roof the control tower is entirely glazed, and is equipped not only with elaborate lighting-control switch-board, direction and velocity wind indicator, telephone switch-board and radio transmitters and receivers, but also with a "public address system" which, by means of revolving horns can send the human voice $3\frac{1}{2}$ miles under still conditions in any direction.

Indianapolis Terminal Hangar

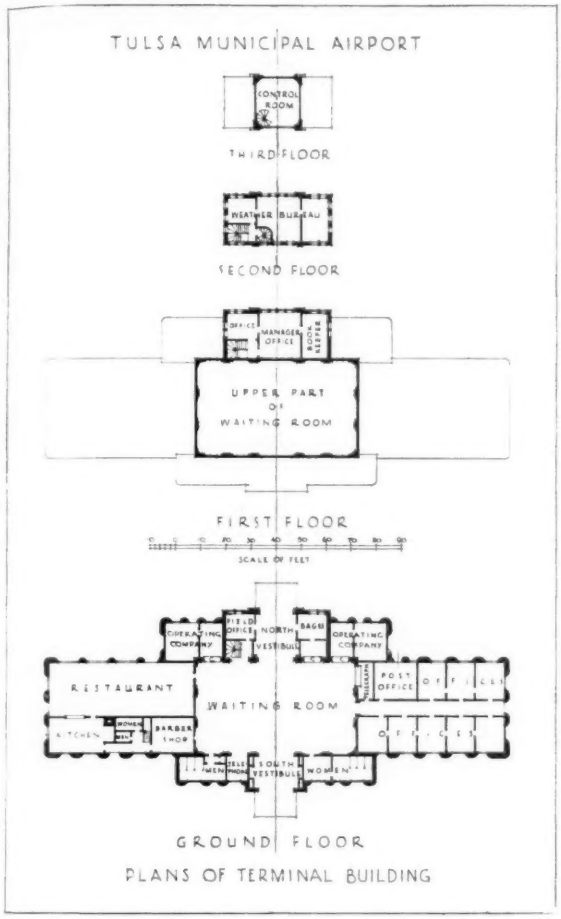
Another extremely interesting combined hangar-and-terminal building is at the Municipal Airport at Indianapolis. The hangar is 100 ft. by 125 ft., with machine shops and stores on the roadside and station (with restaurant), offices of airport manager and operating companies, pilots' bedroom, weather bureau and control room on the aerodrome side. In opposition to Wayne County and to the Boeing building at Oakland, where connection across the hangar is made at a high level, road traffic is here taken down ramps under the hangar and the road passenger is discharged into a staircase hall on the aerodrome side. Lavatory accommodation adjoins, and one flight of stairs leads him to the central waiting room, where he finds restaurant, telephone, telegraph and ticket booking facilities, and from which he walks down his selected loading canopy to his aeroplane. Given conditions that make the problem necessary, this is a fine though somewhat expensive solution. The ground is clay and a large portion of the basement is utilised. Heating is by oil, and the heating chamber contains a compressed air cylinder for blowing up tyres in the hangar above. Water is not run by gravity, but under pressure, and is stored in the basement. There is a blower to clear possible motor-car fumes from the ramp. The hangar has a false ceiling below the roof members, the space above being unutilised, and the only natural light is from the glazed doors, which have a clearance of twenty-two feet. There are fire doors between hangar and workshops, which close automatically under heat. The control room is very efficient—all glass and copper, with a narrow walk-way round it. The building is unique without being freakish, and is by no means negligible architecturally. With all their wealth of inspiration the Americans seem to have avoided "stunt" buildings, though one recalls a hexagonal hangar, perfect in theory but less happy in practice.

The Akron Hangar

The last hangar to be considered is the colossal home of the Akron. The construction of its doors was a considerable engineering feat; they are held at the apex by the crown of the roof while their base moves round on a curved railway. They close like the jaws of some prehistoric monster. The shell is supported by a series of ribs—in essence not unlike an airship itself.

Terminal Buildings

In spite of the several examples of hangars which are combined with stations or administration or both, the general tendency is undoubtedly for the terminal building, containing station, administration and control, to be an entirely separate structure. While at large and busy airports the resulting lack of centralisation seems to be more than compensated by the absence of traffic complications, this tendency also applies to smaller ports, several intermediate landing fields having charming little stations sometimes unnecessarily far from the service hangars. At Winslow the building already illustrated contains an office for the superintendent, a comfortable waiting-



PLANS OF TERMINAL BUILDING

No. 13

lounge and most adequate sanitary accommodation—better than in many an important railway station in England. Tuscon adds a delightful verandah.

Terminal Building at Tulsa

Turning to terminal buildings at busier airports, I have selected that at Tulsa as representative of a well defined if newly developed type. The focal point of the plan (illustration 13) is the waiting hall, which is about 62 feet by 35 feet. Around this are grouped booking counters, lavatories, restaurant and barber's shop, telegraphs and telephones, offices for operating companies, and a staircase leading to port administration, weather bureau and control tower. As a typical plan it is hard to beat; the excellent view of the field from all official rooms, the position of the post office and the possibility of future extension are all points worthy of note. The only criticism is that, of the public rooms, the waiting hall has no view and the restaurant only restricted view of the field. No provision appears to have been made for a first-aid room, but this will no doubt occupy one of the offices. The kitchens are rudimentary but one assumes that most of the catering will be on the quick-lunch-counter principle which is so common and so well done in America. The architects are Messrs. Smith and Sentner of Tulsa and Kansas City.

Terminal Building at Chicago

The terminal building at the Chicago municipal airport is very similar in plan to that at Tulsa. The weather bureau is very accessible for visiting pilots and rightly adjoins the office of the airways section of the Department of Commerce, while the staircase nearby leads direct to the balloon inflation room and thence to the flat roof. The control room here is only accessible through the airport office. It is interesting to note the entire absence of service facilities in connection with the restaurant. Considering the importance of the port this building seems very small and may well share the fate of that at Oakland which was greatly enlarged before completion and is still inadequate. Externally its simple horizontal lines are well suited to its purpose, though the ground floor cills are forced rather high in order to obtain this effect. The main entrance is by no means happy and would, in my opinion, have been much more successful had the solid over been uninterrupted and the axis marked by a projecting hood. It seems a pity that valuable aerodrome frontage should be wasted on women's toilet. Heating is by gas which runs automatically and generates steam. The building has cost about £16,500 and was designed by Mr. Paul Gerhardt, Jr., the City Architect.

Terminal Building at Floyd Bennett

Another new terminal building has just been completed at Floyd Bennett. Externally its happiest aspect is from the road, where it gives, however, the effect of a dignified Town Hall with rather poorly detailed windows. On the field side it is forced to realise that it is an airport building and is consequently less cohesive. Planning is on the same general idea as at Tulsa and Chicago but on a much larger and more elaborate scale, while the introduction of a semi-basement under the whole building enables a well raised terrace to run along the field side. Access to the lower floor is obtained by ramps from both field and road and by steps at each end. This enables the first-aid room to be in quiet surroundings and so placed that the injured can be taken down a ramp direct from the field and up again into an ambulance on the road side. This floor also contains switch room, kitchens in connection with restaurant above, two large rooms for field employees with lavatories and time-keepers' office, space for freight and express, and compressed air gear for signals. These signals are by whistle, a 4 inch whistle being used for "paging" and 8 inch for crash alarm. There is also a fire alarm horn which gives by code the location of the trouble. There are signal controls in every hangar.

The ground floor has an elaboration of the usual sta-

tion accommodation grouped round a galleried top-lit waiting hall while on the first floor are offices and a number of bedrooms. These include a "celebrity suite" for any people of note who happen to be passing through, six large bedrooms each with bath, sleeping accommodation for nine pilots with three bathrooms and rooms for resident maids. With its own tailor and barber's shop it is, I believe, the only instance in America where a complete hotel is combined in one building with station, administration and control. In the tower overlooking the field is weather bureau chart-room with direct roof access and, above, the control room glazed on all sides with narrow-walk-way around it. Two lifts and four staircases give access to the roof. The interior is elaborate and expensive and—if I may be permitted the word—slightly vulgar.

Terminal Building at Burbank

A further terminal building worthy of full illustration is that at the United Airport, Burbank. Its plan is not particularly impressive on paper but it is one of the most beautiful terminal buildings I have seen with an atmosphere of happy hospitality entirely justified by its personnel. Its main interest in a report is its large covered verandah on the first floor, practically the whole roof area at this level being available for visitors. The illustration on page 640 gives a general view.

Hotel Buildings

Airports in America are not at present very well equipped with hotel buildings and advantage is usually taken of the clause in the A.I.A. rating which permits sleeping accommodation to be half-a-mile away. Oakland is in rather an exceptional position in this respect since its famous training school creates a fairly even and continuous demand for convenient and relatively inexpensive hotel accommodation. Its hotel is an independent building though connected by covered way with the restaurant. Since only men are catered for, common bathrooms are provided for the majority, and where there are separate bathrooms they are generally so arranged that they can be shared between two double-bedrooms. There are 37 bedrooms all of which are normally occupied, pupils paying £11 a month, including board. A room with bath can be occupied for one night for about 6s., a decided boon for visiting pilots.

The restaurant building consists of a kitchen some 24 feet by 48 feet serving a coffee shop 30 feet by 25 feet and a dining room 75 feet by 28 feet, part of which can be shut off for banquets. As usual in America, lavatory accommodation is in the centre of the building.

There is a very pleasant combined hotel and restaurant building on three floors at Roosevelt Field. In the basement are storage, space for future grill room and lavatory accommodation for both sexes which is also directly accessible from the aerodrome. On the ground floor is the main restaurant, about 50 feet by 40 feet, with two long counters and a number of small tables, with kitchens, etc., and connection with the hotel portion which has a very pleasant lounge and in all sixteen bedrooms. On the first floor is another restaurant some 40 feet by 25 feet, which can be reserved for special occasions and is surrounded on three sides by a paved terrace giving full view of the field.

CONCLUSION

The proper design of an airport is a new problem: it is the most startlingly new architectural problem since the invention of the steam locomotive gave the world the railway station. Generally England, as the pioneer of the railways, failed with her railway stations, while America profited by her experience. America has to-day a greater number of developed airports than any other country and it should be England's turn to take advantage of the pioneer work already done.

The architectural opportunities of the developed airport are moreover greater than those of the railway station. Even larger problems of town-planning arise and the port itself, covering several hundred acres, is seen not only from the surrounding country but also from every conceivable angle above. This gives unrivalled opportunities in massing and in ordered layout while problems connected with the many ground activities offer scope to the most acute brain.

After thirty years or more of development the American skyscraper as typified by the Empire State building is approaching perfection. Perfection, however, implies sterility as progress must cease. The perfect airport will never arrive since every individual port has its own peculiar problems and is, to some extent, a law to itself. In each case the relationships between, and relative importance of scheduled liner traffic, joy-riding, taxi-services, air chars-a-bancs, private flying, air-training, night flying and displays and the related ground facilities for hangarage, servicing, storage, car parking and garaging, social intercourse, sleep and refreshment, sightseeing, recreation, ground-training, manufacturing sales and advertising must be carefully considered in addition to the fundamentals of supervision, administration and control with their attendant provisions for lighting, wireless, medical attention and general services.

An airport, to be either efficient or beautiful, must work to a "master-plan" which should be worked-out in considerable detail but be sufficiently flexible to absorb unforeseen developments not only in the airport but also in aircraft itself. This master-plan is best achieved by collaboration between owner, authorities, aeronautical consultant and architect, and the same brains should, as far as possible, control all subsequent work.

Presentation to the R.I.B.A. of the Ninth Volume of the Wren Society

AT THE FIFTEENTH GENERAL MEETING OF THE SESSION, MONDAY, 13 JUNE

THE PRESIDENT, SIR RAYMOND UNWIN, IN THE CHAIR

On completion of the formal business of the meeting, which included the reading of the Scrutineers' Report of the results of the annual elections, the President received from Mr. Arthur T. Bolton, F.S.A. [*F.*], and Mr. H. Duncan Hendry [*F.*] a specially bound copy of the Ninth Volume of the Wren Society. This volume, which is the first of two dealing with the London city churches, has been dedicated to the President and Council of the R.I.B.A., "in due remembrance of Professor Charles R. Cockerell, R.A., P.R.I.B.A., the first architect-president, who, as this volume testifies, was a devoted admirer and diligent student of the works of that incomparable architect, Sir Christopher Wren."

The President, having briefly thanked Mr. Bolton and Mr. Hendry, called on Mr. Bolton to say a few words.

Mr. ARTHUR T. BOLTON, having expressed the thanks of the Wren Society to the R.I.B.A. for the grant which it had made towards the cost of the present volume, spoke of the work of the Society and of the need for yet further support from members of the architectural profession. To his own generation, said Mr. Bolton, Wren was more generally known as the architect of the city churches than as the architect of St. Paul's. The Cathedral rose slowly, and did not start until 1675, five years after work on the churches had begun and several years after many had been completed but for their towers.

In speaking of the two particular volumes dealing with the city churches, Mr. Bolton stated that they had managed to procure from the Royal Historical Commission the photographs of the churches published in Volume IV of the Commission's Reports; these would all appear, carefully classified according to the part of the building illustrated, in the next Wren Society volume. They would reveal the beauty of the churches to many of those subscribers to the Society who, living out of England, could never hope to see the churches themselves. The reprint of John Clayton's drawings published in the Ninth Volume would prove, said Mr. Bolton, of great value. The large folio published by Clayton in 1848 was now difficult to obtain and was expensive; here, however, for no more than one guinea's cost could be seen all Clayton's drawings.

Mr. Bolton then vigorously disputed the contention sometimes made that the work of the Society was archæological and no proper concern of architects. It was impossible, he said, for any architect to have too great a knowledge of Wren. There was much of his work which we should never understand; it was impossible for a man to devote 35 years of his life to building something as did Wren on St. Paul's without building himself into it. That, he said, was the secret of St. Paul's which we should never know.

Among future volumes to be published by the Society, said Mr. Bolton, were to be two on the building accounts of St. Paul's; these, when published, should be of inestimable value, for they would settle many points relating to the Cathedral and its builders which had previously been in dispute. The cost of the two volumes which these accounts would occupy would be about £1,000 and if it was to be done, at least 100 new members would be needed. "I hope," said Mr. Bolton, "that there will be at least ten righteous men in this meeting to-night who will help us. . . . I ask you seriously to consider whether you cannot help; we cannot go on publishing volumes as we are doing unless you give us support."

Referring again to the Ninth and Tenth Volumes, Mr. Bolton said that they had drawn on plans of the city churches in All Soul's Library and the King's Library of the British Museum. An analysis had been given of the sale in 1749, and they had been able to trace half the drawings sold then, including 100 drawings of the churches; the whereabouts of the remainder were unknown, though they were probably in existence still.

From the clerk of works' receipts book interesting light could be thrown on one of the most important facts connected with St. Paul's: the history of the warrant design and the rejected model design. The first model was made in 1710 by the clerk of works, and it cost £215; later another model was made, and from December 1673 to October 1674 £505 was spent on it; this is the great model which now exists. The Royal Warrant to proceed with the building was dated 14 May 1675, so there was a period between October and May in which the model design was rejected and the warrant design

adopted. Mr. Bolton suggested that Wren, being annoyed at the rejection of his favourite model design, hastily put together a design to satisfy public opinion and then went to the King, and himself drawing up the warrant, obtained the Royal Consent; the King, being as annoyed with the delays as Wren, was content to order Wren to proceed with the work.

As soon as he had obtained the warrant, Wren entered into the contracts for sand and lime, the first contracts being dated 16 June and 18 June 1675. He then, as the work proceeded, changed his design to suit local circumstances.

Wren was in no sense an official, said Mr. Bolton, but the King's private architect; his troubles began with the death of the last of the Stuarts.

Mr. Bolton then showed how the work of the Wren Society had revealed important information, which, if it had been known earlier, would have prevented many serious mistakes in the treatment of the Cathedral. It was quite certain now that Wren had the whole Cathedral painted and that the stripping of the paint in the last century was a mistake. We had to consider not what we thought, but what Wren thought. If the work had not been taken out of his hands by people who did not understand him, we would have had the painting in it done, not by Thornhill, of whom he disapproved, but by Pellegrini. As an example of the extent to which Wren was in advance of his time, Mr. Bolton quoted the use of oil as a preservative of stonework, which Wren had ordered for the west front statues on the Cathedral.

Mr. Bolton finally stated that their researches had revealed many interesting facts about Tijun's work. His first contract was for the execution of the iron windows; he also executed the iron chain in the dome and the copperwork on the pineapples on the western towers.

Among the future volumes to be published by the Society, said Mr. Bolton, were to be two on the building accounts of St. Paul's; these, when published, should be of inestimable value since they would settle many points previously in dispute.

The President then called on Mr. H. S. GOODHART-RENDEL, Chairman of the Literature Standing Committee, who, in thanking the Wren Society, said that the Royal Institute had had a remarkable gift made to it for which we were extremely grateful. It was a great privilege that the ninth volume of this remarkable work should have been dedicated to the Institute.

The importance of this work was, he said, most striking. Mr. Bolton had said that only one-third of the subscribers were architects. That was because Wren's chief interest to us was as a man, a great Englishman, every detail of whose life was intensely thrilling. From the work of the Wren Society, he said, we had adequate data before us to learn about one of the cleverest Englishmen who ever lived, a man of astonishing ingenuity. He came in an age of conceits, and enjoyed doing such things as making a one-storey building look like a two-storey building, which was amusing, but not architecture. Books on Wren might be corrupting for young students, but it was important for us to support this phenomenal work of the Wren Society, so that we might understand his ingenuity and fancy, not only in architecture, but in everything he did. He was an all-round genius. He did things at once which would take most people a lifetime. Every Englishman who can afford to, said Mr. Goodhart-Rendel, should support the Wren Society as a great national work. Finally, he said that we were proud of the ninth volume and its dedication, and he added an appreciation of the fact that Clayton's book, usually inaccessible, was reprinted in it. The volume, he said, was extraordinarily useful and beautifully done, and very cheap.

At the close of Mr. Goodhart-Rendel's speech, Mr. SYDNEY TATCHELL [*F.*], Vice-President, rising, said : This is the first general meeting which has been held since the publication of the Birthday Honours, and I am sure that, although those of us who were at the Council meeting have already expressed our appreciation of the honour conferred upon our President by His Majesty, and our affection for him as President, I am sure you would not wish to leave this evening without expressing as a general body of members our congratulations to our President.

This was supported by acclamation.

The PRESIDENT, in acknowledgment of the congratulations, said: I thank you exceedingly, gentlemen. Nevertheless, I thank you for your very great cordiality, and can only say that I hope this intimation from the powers that be may show an accession of interest in architecture and town-planning, and for the subjects which we all have at heart.

Reviews

THE WREN SOCIETY VOLUME IX*

REVIEWED BY WALTER H. GODFREY, F.S.A., F.R.I.B.A.

Of all the volumes which the Wren Society has produced, this, the ninth, is in many ways the most notable. The story of the rebuilding of London after the Great Fire is epic in character and Sir Christopher Wren is certainly its hero. In the letter which he wrote, when he had probably passed his 80th year, to a fellow-commissioner on the scheme for fifty additional churches under the Act of Queen Anne, the veteran architect reveals something of himself and the cares with which his mighty task was charged. The reprinting of this letter from the *Parentalia* in the present volume shows the desire of the compilers that the mosaic of this collection should present as complete a picture as possible of so important a phase of Wren's work.

The admirable policy which has governed the former volumes of the Society is here amplified. It has been happily realised that the mere reproduction of Wren's original drawings, though of the greatest interest and value, was not of itself enough. The fullest tribute to the architect's genius lay in the elucidation of the drawings, and in bringing into service all sources of information whether contemporary or subsequent. This broad view has resulted in a very considerable accession of knowledge concerning Sir Christopher Wren and his works, and all students of architecture have been laid under a heavy debt to Mr. Bolton and his fellow workers.

Some fifty or more original studies of the city churches have been here reproduced from the collection at All Souls College, Oxford, supplemented from the Pepysian Collections and from the Soane and the British Museum. The examination of these drawings requires the assistance of a record of the churches as actually carried out, for purposes of identification and comparison. It was a happy idea, therefore, to republish with them a complete set of the measured drawings, which John Clayton had made and issued, of the forty-six churches remaining in 1848, since by this means the student is put in possession of full and detailed information for reference, and Wren's great accomplishment can be the more easily realised. Clayton's drawings, which are reproduced with admirable clearness, have been numbered and arranged in the order of the list in the *Parentalia*, so that they form a permanent and graphic index to the churches. And as a coping stone to this edifice we are given engravings from *Architectura Ecclesiastica Londinii* (C. Clarke) to illustrate the twenty churches that have been destroyed.

Enough has been said to show what an invaluable reference book has been compiled in this volume, and also how ingeniously the editors have constructed and perfected their tribute to Wren. His own drawings fall into place easily and helpfully, bringing in the personal element and letting us look behind the scenes into his essays and experiments in design.

Clayton's work, which becomes as it were the framework not only for this volume but also for the one that is to follow, was, as the editors state, directly inspired by Professor C. R. Cockerell, the first architect-president of the Royal Institute of British Architects, and it is in "due remembrance" of his labours and of his admiration for Wren, that the Society has specially dedicated Volume IX to the President and Council of the Royal Institute. It is a most appropriate and graceful gesture and links not only an active present with the greatness of the past, but brings the architects of to-day into touch with the foremost English exponent of their profession.

We honour ourselves by the tribute we pay to men who are worthy of honour, and the members of the Wren Society are performing an act of national and professional patriotism in honouring the man whom they justly call "that incomparable architect." Wren has the privilege, according to few architects, of a certain homage from the general public, but he will always receive most honour and most affectionate appreciation from the profession. He has been called an amateur—we like him the more that he was no doctrinaire and never ceased to learn; the freelance scoffs at his adherence to Classical methods—we admire his innate architectural handling of all his problems; the purist finds fault with his occasional licence and his departure from strict academic usage—we are thankful for his humour and versatility. His powers of assimilation, adaptation and invention were those of the ideal architect, one who, living not in the skies but on this sorry earth, transmits practical necessities and clamant needs into things of order, of rhythm, and of winning charm.

Mr. Bolton in his sympathetic introduction tells us how invariably "Wren made the best of things whether in dealing with men or materials. He had a genius for deciding on what was and what was not possible in any given circumstances." And his "kindhearted geniality of temper" carried him through. We know he was harassed by exacting and unreasonable clients and that his crowded tasks were often hurried to completion with less thought and consideration than they needed. We know

**The Ninth Volume of the Wren Society.* 1932. The Parochial Churches of Sir Christopher Wren, 1666–1718. Part 1. Oxford University Press. [1932.] 29 pp. Illustrations: "A Tribute to Sir Christopher Wren," watercolour by Prof. C. R. Cockerell (frontispiece); 20 views of the destroyed churches; 70 plates of measured drawings of Wren's churches by John Clayton; 43 plates of original drawings, etc.

he had the greatest difficulties in finding good bricks and lime, in the supply of his stone and timber as well as the personnel of his craftsmen, his masons and carpenters. In this he suffered the common lot of the architect, but in an intensive and increased degree. Yet, he triumphed and lived to the ripe age of 91. The universality of his character can be gauged by the wide influence of his work, not only on his own generation, but on the whole of the eighteenth century, and, through it, on the standards of the present day. Wren's devotion to his art was no less because he made it work hard in the service of his countrymen; he kept his ideals untarnished and his enthusiasm whole, without any of the aloofness of the virtuoso; he was a practical Englishman, and the father of the English renaissance.

The Wren Society announce that with their tenth volume they will be half-way through their programme, which is to be limited to twenty issues. Their publications form one of the most important contributions to the history of English architecture which have appeared in recent years, and their labours should certainly be supported by the whole profession.

RENAISSANCE PALACES IN NORTHERN ITALY*

A REVIEW BY F. R. HIORNS, F.R.I.B.A.

This re-issue of *Renaissance Palaces of Northern Italy*, abbreviated and revised in form, comes as another in the constant succession of works recording and emphasising the value and interest of Renaissance Art. The six-volume, large folio edition of *Palast-Architektur* (Palast-Architektur von Ober—Italien und Toscana, etc.—Berlin) issue of which commenced in 1886—and of the more recent volumes of which Dr. Haupt acted as editor—is a reference work of undoubted value to students of the late mediæval and renaissance architecture of Italy. Its reproductions of large, clearly defined, and well selected and composed, photographic views; frequent geometric line illustrations, in plan, section, and elevation, of complete buildings; supplemented by enlarged scale details of ornamental features, similarly represented or in the form of shaded monochrome drawings, combine to establish its now well-recognised position as a record of a notable phase of Italian architecture. The process of illustration so represented is one of great practical value to the designer, calculated as it is to make clear the technical processes by which the æsthetic effects of modelling and form in building were obtained by the means already explained; while a number of well-produced colour prints assist appreciation of the characteristic painted decoration and colour enrichment that, in Italy, round off the more essentially plastic combinations of the architect and sculptor. Produced in this general manner, on thick paper, the very completeness and excellence of the Berlin edition—where the important groups of Genoese and Venetian palaces each extend to a separate volume—militate against its general utility; the sheer bulk and weight of the volumes involving more fatigue in handling than most scholars will willingly undergo even in pursuit of so fascinating a subject as that with which this work deals. From this standpoint, and having regard to the present high cost of the original volumes, Messrs. Batsford are well justified in the purpose that lies behind this revised and abbreviated issue of a valuable work.

In the new edition the essence of the original six volumes is contained in three of smaller size—probably representing a quarter of the bulk and weight of the earlier issue, and certainly far more than that difference in cost value. Apart from a necessary reduction in the number of illustrative plates, it hardly appears that anything of really material importance has been sacrificed by the change. In their reduced size the illustrations are as good as formerly, and we are only left to regret that cost of production has set aside the colour plates that were an attractive feature of the larger work.

The decision as to which illustrations should lapse is, in such a case, one of great difficulty, but examination suggests that the ultimate selection has been judiciously made. If we take as an example Galeazzo Alessi's splendid Villa Cambiaso (S. Francesco d'Albaro) off the Nervi road, near Genoa, the original illustrations include a general, and a more detailed, photographic view of the exterior, a carefully dimensioned plan and section of the whole building, plan and elevational details of a loggia, a most effective photographic view of the latter showing clearly almost every detail of its treatment, and a further double-page devoted to the delineation of ornamental features; and all but the last sheet are reproduced in Messrs. Batsford's curtailed edition. Turning, further, to so fine an example of Palladio's manner as his Palazzo Chiericati at Vicenza (now the civic museum) we find the plan and a geometric elevational detail of the façade are retained in the new work, but the photographic view of the exterior and another of a finely modelled and painted ceiling are omitted. Such sacrifices are, in the circumstances, inevitable but involve no serious lessening in the value of the work for its purpose. What was doubtful originally, and remains so in the general form of the work, is the grouping or classification of the buildings on a geographical rather than a chronological basis, so that it is impossible to trace consistently and conveniently the development of and

* *Renaissance Palaces of Northern Italy and Tuscany:* With some examples of earlier styles, from the thirteenth to the seventeenth century. Edited by Dr. A. Haupt, G.B. Revised re-issue. (Translation of Palast-Architektur . . .) 3 vols. London: B. T. Batsford, Ltd. [1931.] (£7 10s. the set.)

merging of one stylistic manner into another, in accord with changes in ideas and social conditions occurring during the five centuries or so spanned by the subject.

The first volume of the new work deals with Tuscan examples of palace architecture illustrated in the cities or towns of Florence, Pisa, Siena, Pienza, San Gimignano, Montepulciano, Pistoia, Lucca, and Massa; the second volume covers the Venetian quarter, including Venice itself, Verona, Mantua, Vicenza, and Padua; and the third comprises a geographical mixture that takes us from Ferrara, Bologna, and Modena in the eastern area through the more central and northerly Piacenza, Cremona, Pavia, Milan, Brescia, and Bergamo to Genoa and Turin in the west. By such a grouping, ignoring chronological order, the historical sequence is largely lost, examples placed in juxtaposition, illustrating the palace architecture of individual cities being, in date, separated by several centuries. The sombre but extremely beautiful thirteenth-century Palazzo Tolomei at Siena, for example, becomes grouped with the mid-Renaissance Santa Colomba, commonly attributed to Baldassare Peruzzi; and thirteenth and fourteenth-century work at Florence is put in illustrative association with that of some centuries later, as with the noble Uguccioni Palace (sixteenth-seventeenth century) fronting the Piazza della Signoria, and the almost baroque Palazzo Frescobaldi. Such differences are almost equivalent to a conjunction of the Divine Comedy with the atmosphere of a Goldoni play; or, in painting, the austerities of Giotto contrasted with the, later, playful fancies of a Tiepolo or a Battista Zelotti, whose outlook on life was so different. And, similarly, the conditions that caused the fortress-like severities of the Strozzi and Pitti palaces of Florence would have no appropriate relation to the light-hearted gaieties of the *villeggiatura* that account for, shall we say, the summer villas of the Brenta. It is soon clear, indeed, that internal civic strife—the rivalries of cities—the contention of despots, lay and ecclesiastic, against each other—the attractions of power, wealth, and pleasure—all played their part, and are expressed in the treatment of Italian palace architecture. But, if the method of presentation involves some stylistic confusion, it is a fault, attaching to the original work, for which those responsible for the new issue cannot be blamed—and when, as now happens, each of the new volumes presents no less than 160 plates, illustrative of the palazzo through four to five centuries, ample compensation is to be found for any theoretic departure from perfection of arrangement. In addition to some of the most notable Gothic palaces of Northern Italy, works by nearly all the greater Renaissance architects are shown, from the early period of Brunelleschi and Alberti to the late phase, of Baroque tendency, associated with the period, if not the manner of Galeazzo Alessi, Guarini and Bartolomeo Bianco. As a class the buildings show a consistent excellence of planning and decorative treatment expressive, in their various ways, of the austerity, ambition, gallantry or lighter vanities of the persons or the times that produced them. Their merits are, accordingly, to be interpreted in the light of the outlook of their age. Some editorial judgments on æsthetic values might, perhaps, be questioned. Taking the works of San Micheli, for example, it is difficult to understand a preference for his Bevilacqua Palace at Verona, employing on its façade—as it is put—"the whole repertory of antiquity," over the nobly magnificent Grimani, that holds its own in the galaxy of great houses that line the Grand Canal of Venice. At the same time, the critical preference for Antonio da San Gallo's Cervini over his Pecora palace, both at Montepulciano, is essentially sound, and can be taken as illustrative of the general discernment shown by those responsible for the choice of examples from a vast range of possible subjects. Though about two hundred separate buildings are dealt with, a large number are illustrated by several, and in the case of many of the more important examples, by a half-dozen or more plates; sufficient to satisfy—one would think—the most ardent seeker after the secrets of hand and brain that made the Italian Renaissance masters the most potent artistic influence in Europe.

It can, accordingly, be said without hesitancy, that Messrs. Batsford have done a real service to architectural scholarship in making available, in convenient form and at so moderate a price, a compilation of such worth; that not only effectively reveals and explains an important phase of social life in Italy in a most interesting age, but is illustrative also of modes of expression in architecture and decoration that will always be of value to the practitioner and the student. To turn these pages is a delight; and the representation of so much variety of architectural and ornamental charm, is, in itself, an unfailing source of æsthetic stimulus.

A NEW BOOK ON TOWN PLANNING*

A REVIEW BY PROFESSOR PATRICK ABERCROMBIE, M.A., F.R.I.B.A.

An extremely valuable type of book is produced when a great practitioner in his scanty moments of leisure finds time to write or dictate his views based upon his personal contacts and experience of the subject, of which he has made himself a master. Hausmann's Memoirs, immensely interesting and valuable though they are, are perhaps of too personal a nature to realise the type of book which is meant. There is not a plan or an illustration in them. How much should we have valued the book if it had been a full account of his views of town planning in general based largely upon his unique experience in being given a Capital City as his workshop?

**Recent Advances in Town Planning.* By Thomas Adams, in collaboration with F. Longstreth Thompson, E. Maxwell Fry, Jas. W. R. Adams. Lond.: J. & A. Churchill. [1932.] £1 5s.

Mr. Thomas Adams, the author of *Recent Advances in Town Planning* (in collaboration with his partners, Mr. Longstreth Thompson, Mr. Maxwell Fry and Mr. J. W. R. Adams), has fortunately found time in his busy life to produce the very type of book which Hausmann might have done for a former generation of town planners. It is not in any sense a theoretical treatise on the subject. Its arrangement indeed is somewhat desultory, but it is a rich mine of information of the practical problems that are facing everyone who is attempting to carry out town or regional planning schemes at the present moment. There are few people with such wide experience as Mr. Thomas Adams, who combines in himself the interest in the detail and the early period element of the Garden City movement with the wide outlook resulting from his position as Consultant to the Regional Plan of New York and its environs; and the book well reflects this breadth of outlook for, primarily written as one instinctively assumes for this country, there is a continual reference to the Continent and America which is of great value to those who are perhaps somewhat too narrowly concentrating upon the problems of their own district and country. For example, after two excellent chapters and an Introduction, the latter concerned very usefully with definitions and the former with a brief review of the early phases of the modern movement and its law in Great Britain, there is a most useful chapter devoted to the law and practice outside Great Britain.

Thenceafter, the more precise technical part of the book begins, which follows in its arrangement the recognised lines of survey, regional planning, town development, legal town planning schemes, and later local development and site planning. These four chapters, which may be said to cover the ground of legal town planning in England, are in many ways the most valuable in the book to the practitioner. If less personal than some of the others, they sum up the present powers and the practice in this country in an admirable way. If one were to criticise a book of such fullness it would be that immediately following these existing powers one would like to have seen an important chapter devoted to the re-planning of built-up areas, which together with country planning seem to be the new direction which the energies of this country will take. The re-planning is relegated to a somewhat unimportant part of the chapter on Site Planning and Architectural Control. An admirable chapter on Transportation does a good deal to atone for this lack and the portion of the preceding chapter itself on Site Planning, though brief, is extremely good and reminds one that Mr. Longstreth Thompson has himself written an excellent volume devoted to this subject alone.

The book is extremely well and freshly illustrated, hardly any of the hackneyed plans and views appearing in it, and there are some excellent sketches by Mr. Maxwell Fry. This, then, is a volume which every practising town planner should possess and which will be found of great value to all who take or should take an interest in the subject.

UNDERPINNING

UNDERPINNING. *By Prentis and White. Washington: Columbia University Press; and Oxford: University Press.* [*1932.*] £2 10*s.*

Reviewed by OSCAR FABER, D.Sc., M.Inst.C.E. [*Hon. A.*]

This is a work descriptive of American practice in underpinning by Messrs. Prentis and White. We gather from the introduction by W. A. Starrett that "skilful engineers that they are, they have put their knowledge to the most practical of tests by actually undertaking the projects then desired and contracting for their successful completion."

The document is indeed an exceedingly valuable and practical one, written by practical engineers for engineers, and the latter portion of the work is devoted to a contribution on the science of foundations, based chiefly on the work of Dr. Terzaghi, who demolishes the older theories on which so many foundations are based:—

(1) That pressures beneath footings are uniform when the footings are concentrically loaded.

(2) That the capacities of footings are in direct proportion to their areas.

(3) That the capacities of pile footings are in direct proportion to the number of piles.

(4) That the bearing value of each pile may be correctly determined from a formula such as the Engineering News Formula based upon the work performed in driving the piles.

(5) That friction can be relied upon to support piles even though compressible deposits extend far below the points of the piles.

The author of this review has already pointed out in his paper before the R.I.B.A. in 1925 on Foundations, the fallacies underlying some of these assumptions on which, unfortunately, most foundation designs are still based, and Terzaghi's work deals in a most illuminating way with some of these problems.

The book illustrates and describes American practice in underpinning and it may be said at once that in a great many cases American practice differs from British practice in this science and art. In a great many cases, however, it must be admitted that the difference between the two practices could with advantage be reduced by much closer study in this country of American methods, and it is perhaps for that very reason that the book is of special interest and value to us.

After Terzaghi's statement, referred to at the end of the book, that one of the old theories responsible for some of the mishaps of the past which we have to clear away includes the assumption that the capacities of footings are in direct proportion to their areas, it is amusing to read on page 29 a list of the allowable bearing capacities of various soils in tons per square foot, ranging from soft clay, one ton per square foot, to hard rock, 40 tons per square foot, which of course assumes the very thing which Terzaghi denies, namely, that the allowable load is directly proportional to the area.

The construction of shores of various types and under various conditions is described in detail, including methods of applying jacks to the shores to transfer sufficient load on to them.

The use of inclined piles as shores is also described and other methods of giving preliminary support to a structure before underpinning is undertaken.

The various methods of underpinning in sections are then described in detail with the inclusion of a great many practical details which ought to be of great value to Contractors. The method used in Chicago of sinking steel wells in the clay is described, and methods of dealing with sliding of inclined rock surfaces.

All sorts of special problems are described in detail such as the underpinning of a chimney stack, and indeed the book is so concisely written that it is quite impossible in a short review to do more than indicate the general nature of its contents.

On page 234 is a photograph showing the settlement of the School of Mines, Mexico City, showing a parabolic settlement amounting to 4 ft. near the middle. It is stated that this was built nearly 300 years ago, which is surprising.

To summarise, it may be said that this is a book well worthy of close scrutiny by all those who are specially concerned with the problems of underpinning, and can be thoroughly recommended.

AMERICAN ARCHITECTURE

CONTEMPORARY AMERICAN ARCHITECTS SERIES. *Raymond Hood, Ely Jacques Kahn, Ralph Adams Cram. Forewords by A. T. North. Lond.: McGraw-Hill Publishing Co.* [1931.] £1 17*s.* 6*d.* the 3.

Reviewed by J. M. RICHARDS [*A.*].

"Analysis of the functions of contemporary architecture establish it as a product which possesses the maximum usefulness, adequate strength and durability, all combined with a due consideration of obsolescence. Architecture can be nothing more than a rational composite of these elements." So says the introduction to the first of these three books, and the strongest impression a study of them gives is of a continuous struggle to reconcile such logical and business-like sentiments as this with the outstanding characteristic of American architecture—that it is, in outlook, essentially stylistic. America has been developing during the past ten years a national style in her city buildings, not based on the rationalism or expressionism of contemporary architecture in Germany and France, but akin to gothic in its plasticity of form and only superficially related to the modernism of Europe by a similar dependence on business and finance and the presence of the time-factor in construction; and it is clearly shown in the volume on Raymond Hood how consistent this development has been.

Mr. Raymond Hood with, to a lesser extent, the firm of Holabird and Root, of Chicago, has done more than anyone else to stabilise American sky-scraper design in a form that succeeds, without reducing the efficiency of the building, in fulfilling the sentimental demand for a recognisable American style. To illustrate this development, an interesting comparison can be made between two Press buildings, similar in function and in their use of the advertising possibilities of such a type of architecture, which are fully illustrated in this book: the Tribune Tower in Chicago, completed as long ago as 1924, and still one of the ornaments of that city, though now rather overshadowed by its recent and more dynamic neighbours; and the News Building, finished only last year, the most striking object in up-town New York.

In essentials of plan they are almost identical, conforming to the type plan of all city office buildings, the elevator battery and a minimum number of internal stanchions being the only fixtures where flexibility of floor space is the basic factor.

Both, needless to say, are steel-framed, and both have the same entirely arbitrary and entirely admirable setting back of the upper storeys and shaping of masses to give the exterior that appearance of completeness that is so often lacking in a functionally conceived building, which merely leaves off when no more storeys are needed.

The Tribune Tower is clothed in heavy stonework and elaborated with authentic Gothic detail skilfully adjusted to its gigantic scale, but in effect surprisingly less Gothic than the clean lines of the News Building, wherein the same form emerges six years later shorn of its mediæval trimmings, at the same time it is a most efficient advertisement and the finest example of the American City style.

In this book also is reproduced in sketch form Mr. Hood's ambitious scheme for the lay-out of the Chicago World's Fair, to be held in 1933, and his even more ambitious proposal of a series of bridges lined with apartment houses thrown across the East River at New York to solve Manhattan's housing problem.

Turning to Mr. Cram, we leave the province of stylised modernity and enter that of conscious stylism in the historical sense, the real province wherein the American architect, by virtue of the thoroughness of his training and the breadth of his scholarship, is supreme, and here we must note one factor which all criticism of the derivative nature of American architecture must take into account, the gradual development in America of an entirely new scale of associations, in which style or manner is determined by purpose instead of by period. The Corinthian column, for instance, is now associated exclusively with banking and finance, and in the public eye is the actual symbol for a bank—the label by which it is identified and no longer a classical motif used for decorative purposes. A new kind of symbolism has grown up—almost of functionalism—in which buildings express their purpose by the display of the appropriate historical detail as adequately as they do on the Continent by emphasis of their characteristic shapes. Pointed arches mean universities and schools, the national style already referred to advertises the big city building, and private houses vary sensibly with the whims of their owners, and even the most eccentrically "modernist" and apparently functional houses, such as are occasionally seen in California and elsewhere, are not rational expressions of an æsthetic principle so much as amusing essays in the reinforced concrete style.

In Ralph Adams Cram we find a specialist in Collegiate Gothic who, under the influence of Bertram Grosvenor Goodhue and, in the case of several of the buildings here illustrated, in partnership with him, has produced a series of dignified groups which, notably at Princeton University and Winston-Salem, Carolina, show the greatest scholarship in detail, and settle easily into the landscape.

It should be remembered in this connection that Collegiate Gothic in America never has the handicap of original Gothic as neighbour, and consequently is not troubled by the accusing bogey of sham mediævalism that haunts the Gothicist in Europe. It can adapt itself more freely to practical requirements, and the inevitable anachronism between style and plan-form is no longer a matter for criticism.

Ely Jacques Kahn, in the remaining book, does not show the astonishing adaptability of the first two architects. He is the city architect, and the buildings shown are the cathedrals wherein is performed the mysterious ritual of Big Business. They are immensely competent and have scale beyond the human of a city where the unit is something bigger than the individual.

In their physical aspect these books are admirable, their only defect a rather confusing multiplication of foreword, introduction and text with the authorship of the opinions in each not clearly indicated.

The photographs are excellent and adequately explained by plans.

A useful record of the process of natural selection by which America is acquiring her architectural formulæ.

TOWN PLANNING: AN EXPLANATORY PAMPHLET

TOWN PLANNING. *An explanation of the Chipping Norton and District planning scheme. Chipping Norton and District Town Planning Committee. By T. F. Thomson, A.M.T.P.I. Pam. Chipping Norton. 1932. 6d.*

This excellent pamphlet was prepared early this year by Mr. T. F. Thomson, town planning surveyor to the Chipping Norton district, to explain the reasons for the application of town planning legislation to an area of such a rural character. Mr. Thomson presents his case clearly, forcibly and persuasively in a way that cannot but have good results; certainly we know of no better short exposition (it is here confined to the limits of 23 pages) of the history and *raison d'être* of town planning. The pamphlet deals first with the meaning of town planning, then with its general scope and so gradually the issue is narrowed down from the national to the local need to show in particular the process of application to Chipping Norton. This is followed by a section on the control of elevations and the use of the Panels of Architects, and an explanation of control of interim development during the preparation of a scheme. Finally there is an admirable series of notes on the siting, design, materials and colours most suitable for buildings in the district. This pamphlet should do much to remove the reproach, sometimes made, that officials work over the heads of the people; it is, incidentally, admirably printed.

ACADEMY ARCHITECTURE AND ARCHITECTURAL REVIEW

IN the closing paragraph of a review in the last JOURNAL of the annual publication *Academy Architecture*, a reference was made to *Architecture Illustrated*. This reference should, of course, have been to *Academy Architecture*, the subject of the review. We much regret any misunderstanding this error may have caused.—ED.

ACCESSIONS TO THE LIBRARY

1931—1932, VII second portion

7 APRIL TO 26 MAY, 1932

ALLIED ARTS AND CRAFTS AND ARCHÆOLOGY

HYDERABAD: [HYDERABAD ARCHÆOLOGICAL DEPARTMENT]
Hyderabad Archæological Series. No. 10. The Gavimath and Palkigundu inscriptions of Asoka. R. L. Turner, ed.
12½″×9¾″. 24 pp. xviii pls. [Hyderabad]: the Nizam's Govt. 1932. R.

GOLDSMITHS, WORSHIPFUL COMPANY OF
Report of proceedings at conference of representatives of the gold, silver and allied trades (and the art schools on the subject of design in the industry, . . . in connection with an exhibition, *cover title*).
pam. 8½″×5½″. [Lond. 1932.] R.

BUILDING

SMITH (V. P.)
The Builders' calculator . . . cubic contents and superficial measure of materials . . . and . . . weights of structural steelwork.
5th ed. 7¼″×3″. vi + 138 pp. Lond.: Crosby Lockwood. 1928. 2s. 6d. P.

PRACTICE

BRISTOL: TYLERS, PLASTERS[!], AND PAINTERS FRIENDLY SOCIETY
[Notice of meeting. Issued to T. Cambridge.] leaflet 180(4). *Presented by A. W. Roques [F.].*

KNOOP (DOUGLAS) AND JONES (G. P.)
Masons and apprenticeship in Mediaeval England. (From the *Economic History Review, Apl.*) pam. 10¼″×6½″. Lond. [1932.] R.

APPARATUS AND MEMBERS

BRITISH STANDARDS INSTITUTION, *formerly* British Engineering Standards Association.
British standard specification (No. 327, part 1) for derrick cranes (power driven). pam. 1932. 2s. R.
British standard specification (No. 437) for cast iron spigot and socket drain pipes. pam. 1932. 2s. R.

MATERIALS

MANCHESTER: MANCHESTER ARCHITECTS' AND BUILDERS' CONSULTATIVE BOARD
*Specification of timbers. Report [No. 1] . . .
pam. 8¾″×6½″. Manchester. 1930. R(2).
*Specification of cement concrete. Report No. 2 . . .
pam. 8¾″×6¼″. Manchester. 1931. R(2).

INSTITUTION OF STRUCTURAL ENGINEERS
Report . . . on steelwork for buildings. Part i: Loads and stresses. Part ii: Steelwork connections.
pams. 8½″×5½″. Lond. 1927 (1928). 3s. 6d., 1s. 6d. R.
Part iii: Materials and workmanship, 1931, is already in the library.

CONSTRUCTION

PATERSON (J. H.)
The arc welding of structural steel. (Institution of Welding Engineers.) pam. 8¼″×5½″. Lond. [1932.] R.

BRITISH STANDARDS INSTITUTION
British standard specification (No. 449) for the use of structural steel in building. pam. 1932. 2s. R.
Dimensions and properties of British standard (No. 4) channels and beams for structural purposes. pam. 1932. 2s. R(2).

COLLINGS (GEO.)
Roof carpentry. (Lockwood's Manuals.)
7¼″×4¾″. x + 150 pp. Lond.: Crosby Lockwood. 1930. 2s. 6d. P.

ELLIS (GEO.)
*Modern practical stairbuilding and handrailing . . . 2 vols.: i: Stair construction and design. (*Cover title:* Modern practical stairbuilding.) xi + 134 pp. + lxx pls.
ii: Handrailing and wreath making. (*Cover title:* Modern practical handrailing.) xi + 108 pp. + xxxii pls.
each 10¼″×7¼″. Lond.: Batsford. 1932. 15s. P.

SANITARY SCIENCE AND EQUIPMENT

PALLOT (A. C.)
The engineering equipment of buildings.
8½″×5½″. xii + 343 pp. + 2 diags. Lond.: Pitman. 1932. 15s. P.

BLAKE (E. G.)
Plumbing. . . . Based on the work of W. P. Buchan. (Lockwood's Trade Manuals.) 2 vols. i: Lead laying, gutters, etc. ii: Sanitary appliances. vii + 178 pp., vii + 196 pp. 7¼″×4¾″. Lond.: Crosby Lockwood. 1924. 12s. the 2. P.

RAYNES (F. W.)
Domestic sanitary engineering and plumbing.
3rd ed. 8¾″×5¾″. xiii + 490 pp. Lond.: Longmans, Green. 1928. £1 1s. P.

MAXWELL (W. H.)
Drainage work and sanitary fittings. 3rd ed. 7¼″×4¾″. (xiii) + 127 pp. Lond.: St. Bride's Press. [1911.] 2s. 6d. P.

ROBERTSON (W.) AND PORTER (C.)
Sanitary law and practice . . . public health . . .
7th ed. 8½″×5½″. xx + 879 pp. Lond.: Sanitary Pubg. Co. 1931. £1 1s. P.

SOLOMON (H. G.)
Domestic electric heating . . . hot water supply and . . . cooking. (Lockwood's Manuals.) 7″×4¾″. vii + 117 pp.
Lond.: Crosby Lockwood. 1927. 3s. 6d. P.

OVERTON (L. J.)
Heating and ventilation. 2nd ed. 8½″×5¼″. vi + 287 pp.
Manchester: Sutherland Pubg. Co. [1932.] 12s. P.
The first edition has been placed in the Loan Library.

PROTECTION

FITZMAURICE (R.)
Causes, consequence and cure of damp in buildings. (Chartered Surveyors' Institution. Preprint.)
pam. 8¾″×5½″. [Lond.] 1932. R.(5)

SURVEYING

CHARTERED SURVEYORS' INSTITUTION
Schedule of professional charges. pam. mo. Lond. 1929. R.
Schedule of professional charges for preparing bills of quantities and valuing work executed. [Replaces Scale 24 in above.]
leaflet [1931]. R.
Schedule of professional charges for preparing bills of quantities . . . pam. 8½″×5½″. Lond. 1931. R

TOWN AND REGIONAL PLANNING AND RURAL PRESERVATION

ADAM (THOMAS) AND OTHERS
*Recent advances in town planning. By T— A— in collaboration with F. Longstreth Thompson, E. Maxwell Fry, Jas. W. R. Adams. 9½″×7¼″. xv+400 pp.+pls. Lond.: J. and A. Churchill. 1932. £1 5s. R. & P.

COMMONS, OPEN SPACES AND FOOTPATHS PRESERVATION SOCIETY
The Maintenance of public footpaths [legal aspect]. By Sir Lawrence Chubb and R. A. Glen. pam. 8½″×5½″. [Lond. 1932.] 6d. R.

COUNCIL FOR THE PRESERVATION OF RURAL ENGLAND
[Memoranda.] No. 24. Town and country planning bill: by F. Longstreth Thompson. Planning schemes and rural preservation and development: by G. L. Pepler. pam. [1932.] R.
No. 25. Agriculture and the preservation of the countryside; by Lord Phillimore. pam. [1932.] R.

SCAPA SOCIETY FOR PREVENTION OF DISFIGUREMENT IN TOWN AND COUNTRY
Scapa pamphlets: No. 8. Landscape disfigured by pylons and poles. pam. 8¾″×5¾″. Lond. [19—]. 1d. R.

PARLIAMENT: BILLS
Town and country planning bill. (As amended by Standing Committee A.) pam. 11″×7½″. Lond. 1932. 1s. 3d. P.

Manuscripts and Typescripts

WEBB (PHILIP)
3 letters. MS. 1902–05.
Presented by the recipient, Mr. Michael Tapper [*A.*] R.I.B.A.
[New premises competition: —Report of the jury of Assessors.—Result . . .—Exhibition: alphabetical list of names.]
3 leaflets. dupl. [1932.] R.I.B.A.

SOWDON (ALBERT)
Excerpts on timber, its movement and protection. Compiled by A— S—. dupl. 10″×8″. 73 pp. Wolverhampton: priv. circ. 1932. 3s. 9d. R.

Drawings and Engravings

COCKERELL (C. R.)
Oxford: Ashmolean Museum. Pediment. Two alternative sketch designs (one on each side of sheet; with flyer showing terminal figure on one design.) *Ink D.* [18—].
Presented by Mr. A. B. Hayward [*L.*].

PORTRAITS
Lewis (James) Etching. n.d.
Nicholson (Peter) Lith. n.d.
Perrault (Charles). C. Le Brun, pinx., 1666. S. Baudet, Sc. Engr. 1675. — P.

Correspondence

"DOUBLE WINDOWS AND BAGENAL"

36 *Bedford Square,*
10 *June* 1932.

To the Editor, JOURNAL R.I.B.A.

SIR,—The above conjunction by Mr. Sullivan (in the discussion on his paper on Office Buildings), though flattering to me, seems to make the problem of noise in modern buildings rather too easy. It has really become a major problem comparable, as Mr. Arthur Davis suggested, to lighting, and in my view should be tackled by admitting it as a factor in design. In the sketch stage the designer of a city building should be conscious of the barrage of noise on his street front and plan accordingly. Mr. Sullivan mentioned that in the newer type of office building fewer and larger areas and courts are replacing the smaller kind. These areas have now an enhanced value. Important board rooms, managers' rooms, and rooms where much work is done by telephone, should be planned on these courts and not on the noisy front. Designers should also recognise the value of the quiet that can be had on upper floors above the cornice. This may modify the planning but it is well worth while. There is a type of municipal buildings plan which has the corridor on the court side and principal rooms on the front: I should far prefer to see the corridors on the main front.

Mr. Arthur Davis made the important point that soundproof windows involve special ventilation: but that also is a design point. Where, for instance, are the inlets to be placed? If they are opened through the window breast as much noise *can* come through them as through an open window (and an inch of open window on a city street can admit 50 decibels of noise). If that noise is to be excluded then special measures are required. A good cheap *standardised* soundproof metal window with fan, electric radiator, and sound baffles, located in the window breast, is badly wanted and might be forthcoming if architects demanded it.

Soundproof windows must be casement, not sash, must be heavy steel, and must have panes of moderate or small size. Large sheets of glass are transparent to low tones and can often be felt vibrating to lorries and buses. The tympanic modernist window is thoroughly bad from the point of view of noise as from many other practical points of view.—Yours faithfully,

H. BAGENAL.

MR. HORACE FARQUHARSON'S SPEECH AFTER MR. L. S. SULLIVAN'S PAPER

14 North Audley Street,
Grosvenor Square, W.1.
8 June 1932.

To the Editor, JOURNAL R.I.B.A.,—

DEAR SIR,—Surely your reporter at the last General Meeting has done me too much honour in giving such a high-sounding name to the perpetrator of the few remarks on the antagonism which may be found between oil-fuel burning and personal cleanliness.

Perhaps it was the subject matter which induced him to give me a name which has rather a Fifth of November flavour.—Yours faithfully,

HORACE FARQUHARSON [*F.*].

[We must apologise for the mistake made in taking down Mr. Farquharson's name at the Meeting. His speech was reported on page 617 in the last JOURNAL under the name Harold Farcus.—ED.]

PLANNING FOR DAYLIGHT IN COMMERCIAL BUILDINGS

9 Gray's Inn Square,
London, W.C.1.
8 June 1932

To the Editor, JOURNAL R.I.B.A.,—

SIR,—One of the illustrations to the valuable paper of Mr. Sylvester Sullivan on office buildings has a very special significance which may easily escape notice. May I therefore be permitted to call attention to it whilst the illustration is still fresh in the minds of your readers. On page 606 of the current issue of the JOURNAL a striking example is given of wise design planned for light as compared with design which is merely greedy of floor space. The context leaves no doubt in the mind of the reader that in the opinion of the author the greedy design is also the less economical.

This is merely corroborative of the outstanding success which has attended the policy of planning for daylight in the new offices of the Underground Railway at Westminster, where Messrs. Adams, Holden & Pearson have contrived a large building in a crowded neighbourhood which is not only admirably lit on all its floors, but also, although well over the Building Act limits of height, does not interfere with its neighbours; but if anything rather improves their light.

As this was achieved mainly by pulling the internal lightwells out to the fronts, the loss of lettable floor space was not so great as would be involved by the omission of an entire floor. It was, however, material; but the result has, I understand, far more than justified any sacrifice of possible floor space inadequately lit, if such can be called sacrifice.

When an eminent authority on commercial buildings erected either for the main, or for the sole purpose of obtaining profit rental, points out that it is better *business* to have eight floors to let which people want rather than nine floors which people might have put up with in Victorian times, then those who have opposed the periodical attempts to amend or repeal the Prescription Act may well take heart of grace.

When it is considered that, in the opinion of one who ought to know, adequate light means something more to business men, in hard cash, than the loss of the rental value of one floor in nine, one can view in its true proportion the perennial agitation for the abolition of all rights of light in order that buildings may go up as high and as close as possible to satisfy the most enterprising, or to adopt Mr. Sullivan's phrase, the greediest client.

We may in this country be less up to date in these matters than America, where on Manhattan one can see possibly twenty stories out of thirty in an office block burning artificial light all day in midsummer. But then, like the Romans whose law of light we inherited, we happen to have an empire to run, and we cannot run it with C3 workers.—Yours faithfully,

PERCY WALDRAM.

Exhibition

ARCHITECTURE AT THE CENTRAL SCHOOL OF ARTS AND CRAFTS

The annual exhibition of the work at the Central School includes that of the evening School of Architecture, in which the students are all engaged in the practice of this art during the day, the majority being architectural assistants, while the teaching staff comprises four practising architects, Messrs. S. B. Caulfield, Basil Oliver, F. H. Mansford, and E. Frazer Tomlins, Fellows of the R.I.B.A., with the assistance of Ewart Andrews, B.Sc., A.M.I.C.E., in dealing with such ancillary subjects as steel and concrete design, stresses, etc.

As the work testifies, this is most definitely a studio for developing the knowledge of design in such a form as to keep it in the closest possible relation to actual practice, the main idea being to give the students a firmer grasp of such problems as are likely to confront them in the earlier stages of professional practice.

With this aim in view the work for the past session has taken the form of the selection of a site for a small seaside town, and the students have selected as subjects the buildings that would naturally find a place there. The layout plan was handled by D. G. Martin, who also designed a cinema hall and an hotel. H. S. Pitt also put in a design for the hotel as well as showing a skilful treatment for the oval swimming pool. S. I. Porteous took the railway station and a cottage hospital, the latter being also chosen by C. K. Slade. Other designs were for the Church (A. Wilkinson and G. C. Hills), the Public Library (D. W. Harrington) and the Club (D. Mackintosh), the Town Hall (D. E. Nye), a Church Hall and an Elementary School (Miss A. A. Pertwee), a smaller School (F. H. Simmons) and a group of cottages by R. Day.

The programme implied a general basic harmony in the character of the designs and the consequent adoption of a treatment derived from English traditions of the eighteenth century as far as appropriate to present-day requirements and building methods. The two church designs diverged towards Gothic in one case and Byzantine in the other, but in both cases the restrained treatment avoided any marked discordance. More freedom was to be found in the designs for the railway station and the swimming pool, but both took their places appropriately in the general scheme.

The criticism took the form of references to minor points where students could profit by a wider experience of the technical requirements in regard to the fulfilment of specific demands in the planning and construction of such buildings as hotels, hospitals, schools, etc. The general grouping and distribution of the blocks left little to be desired, and the development of the problem as a whole was highly creditable to those concerned, justifying the practice of this school in seeking to equip the students for dealing with their everyday work.

It should be pointed out that the limited space available for the exhibition imposes the cruel necessity of redrawing many of the designs to $\frac{1}{16}$ inch scale from the original $\frac{1}{8}$ inch scale to which they were prepared. This superfluous work involving a waste of the students' time should be avoided, as it is obviously possible, by a small expenditure on screens, to increase the area available without affecting the space provided for other sections of the exhibition.

H. V. L.

Annual Elections to Council and Standing Committees

THE SCRUTINEERS' REPORT

The results of the Annual Elections are recorded in the subjoined report of the Scrutineers which was read at the General Meeting on Monday, 13 June.

TO THE CHAIRMAN OF THE GENERAL BUSINESS MEETING, MONDAY, 13 JUNE 1932

The Scrutineers appointed to count the votes for the election of the Council and Standing Committees for the Session 1932-1933 beg to report as follows:—

1,373 envelopes were received—453 from Fellows, 521 from Associates and 399 from Licentiates.

The result of the election is as follows:—

COUNCIL 1932-1933

PRESIDENT.—Sir Raymond Unwin (unopposed).

PAST PRESIDENTS.—Sir Banister Fletcher (unopposed); John Alfred Gotch (unopposed).

VICE-PRESIDENTS.—Ernest Chawner Bewlay (Birmingham) (unopposed) (nominated by the Allied Societies' Conference under Bye-law 28 (a)); Professor Charles Herbert Reilly (Liverpool) (unopposed); Leo Sylvester Sullivan (unopposed); Sydney Tatchell (unopposed).

HONORARY SECRETARY.—Sydney Decimus Kitson (unopposed).

MEMBERS OF COUNCIL.—FELLOWS.—*Elected:* Sir Giles Gilbert Scott, 780 votes; Robert Atkinson, 648; Professor Leslie Patrick Abercrombie, 630; Arthur Keen, 600; Herbert Tudor Buckland, 465; Philip Dalton Hepworth, 417.——*Not Elected:* Louis de Soissons, 383; John Murray Easton, 360; James Theodore Halliday, 342; Harold Chalton Bradshaw, 327; Charles Holloway James, 287; John Watson, 237; Alderman Ewart Gladstone Culpin, 204; John Murray, 200; Thomas Arthur Darcy Braddell, 186; Hon. Humphrey Arthur Pakington, 178; Lt.-Col. George Val Myer, 165; Lionel Godfrey Pearson, 158; Arthur William Kenyon, 132; Briant Alfred Poulter, 121; Reginald Wynn Owen, 115. 1,253 voting papers were received, of which 107 were invalid.

ASSOCIATE MEMBERS OF COUNCIL.—*Elected:* Richard Goulburn Lovell, 432 votes; John Douglas Scott, 386; Lt.-Col. H. P. L. Cart de Lafontaine, 385.——*Not Elected:* Edgar Allan Davey Tanner, 348; Edwin Maxwell Fry, 316; Robert Norman Mackellar, 316; Frederic Edward Towndrow, 299; Stephen Rowland Pierce, 233; Harold Tomlinson, 200; Geoffrey Alan Jellicoe, 165; James Macgregor, 151; Reginald Arthur Rix, 134; Charles Stanley White, 93; Christopher Green, 85; Cecil Henry Perkins, 75. 1,253 voting papers were received, of which 49 were invalid.

LICENTIATE MEMBERS OF COUNCIL.—*Elected:* Francis Robert Taylor, 632 votes; George Nathaniel Kent, 599.——*Not Elected:* Frederic Roger Betenson, 551; Norman Evans, 478. 1,253 voting papers were received, of which 26 were invalid.

REPRESENTATIVES OF ALLIED SOCIETIES IN THE UNITED KINGDOM AND THE IRISH FREE STATE.—*Six Representatives from the Northern Province of England:* Leonard Barnish (Liverpool Architectural Society); Norman Culley (West Yorkshire Society of Architects); Henry Leicester Hicks (Northern Architectural Association); John Lancashire (Sheffield, South Yorkshire and District Society of Architects and Surveyors); Kenneth Ward (York and East Yorkshire Architectural Society); John Hubert Worthington (Manchester Society of Architects). *Five Representatives from the Midland Province of England:* Walter Brand (Leicester and Leicestershire Society of Architects); Major Thomas Cecil Howitt (Nottingham, Derby and Lincoln Architectural Society); Walter Butler Stonebridge (Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects); John Burgess Surman (Birmingham Architectural Association); Cecil Upcher (East Anglian Society of Architects). *Six Representatives from the Southern Province of England:* Hugo Ritchie Bird (Essex, Cambridge and Hertfordshire Society of Architects); Sir Harold Brakspear (Wessex Society of Architects); Thomas Lawrence Dale (Berks, Bucks and Oxon Architectural Association); Ingalton Sanders (Hampshire and Isle of Wight Architectural Association); Benjamin Priestley Shires (Devon and Cornwall Arcitectural Society); one representative to be nominated by the Council of the South-Eastern Society of Architects. *Four Representatives of Allied Societies in Scotland,* nominated by the Council of the Royal Incorporation of Architects in Scotland: James Alexander Arnott (Edinburgh); Arthur Hay Livingstone Mackinnon (Aberdeen); William Erskine Thomson (Dundee); John Watson (Glasgow). *One Representative of Allied Societies in Wales,* nominated by the Council of the South Wales Institute of Architects: Jacob Herbert Jones (Swansea). *Two Representatives of Allied Societies in Ireland:* Frederick George Hicks (Royal Institute of the Architects of Ireland). One representative to be nominated by the Council of the Royal Society of Ulster Architects.

REPRESENTATIVES OF ALLIED SOCIETIES IN THE BRITISH DOMINIONS OVERSEAS.—To be nominated by the Council of each of the following: The Royal Architectural Institute of Canada; The Royal Australian Institute of Architects; The New Zealand Institute of Architects; The Institute of South African Architects; The Indian Institute of Architects.

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION (LONDON).—Arthur Bedford Knapp-Fisher (unopposed).

REPRESENTATIVE OF THE ASSOCIATION OF ARCHITECTS, SURVEYORS AND TECHNICAL ASSISTANTS.—Leonard Archibald Frederic Ireland (unopposed).

CHAIRMAN OF THE BOARD OF ARCHITECTURAL EDUCATION.—William Henry Ansell (unopposed).

CHAIRMEN OF THE ART, LITERATURE, PRACTICE AND SCIENCE STANDING COMMITTEES.

CHAIRMAN OF THE ALLIED SOCIETIES' CONFERENCE.—Ernest Chawner Bewlay (Birmingham) (unopposed).

HONORARY AUDITORS.—Alfred Harold Goslett (unopposed); James Maclaren Ross (unopposed).

ART STANDING COMMITTEE.—FELLOWS.—*Elected:* George Grey Wornum, 872 votes; Charles Henry Holden, 672; Professor Stanley Davenport Adshead, 641; Oswald Partridge Milne, 627.——*Not Elected:* Henry Martineau Fletcher, 593; Louis de Soissons, 456; Roderick Eustace Enthoven, 411; Charles Holloway James, 320; John Clifford Procter, 266; Alderman Ewart Gladstone Culpin, 161. 1,312 voting papers were received of which 20 were invalid.

ASSOCIATES.—*Elected:* Frederic Edward Towndrow, 750 votes; Harold Tomlinson, 611.——*Not Elected:* Stephen Rowland Pierce, 596; Grahame Burnell Tubbs, 514. 1,312 voting papers were received of which 16 were invalid.

LICENTIATES.—*Elected:* Henry Lennox Anderson, 891 votes; Sidney Lunn Whitehouse, 677.——*Not Elected:* Leonard Archibald Frederic Ireland, 657. 1,312 voting papers were received of which 26 were invalid.

LITERATURE STANDING COMMITTEE.—FELLOWS.—*Elected:* Harry Stuart Goodhart-Rendel, 1,116 votes; Arthur Stanley George

Butler, 748; Louis Ambler, 593; Andrew Laurence Noel Russell, 551. *Not Elected:* Henry Castree Hughes, 541; Frederick Herbert Mansford, 482; Charles Hilbert Strange, 360; Arthur Edward Henderson, 336; John Henry Beart Foss, 102. 1,291 voting papers were received of which 17 were invalid.

ASSOCIATES.—*Elected:* Stephen Ernest Dykes Bower, 569 votes; Harold William Chester, 460.——*Not Elected:* Geoffrey Alan Jellicoe, 423; William Sydney Purchon, 416; Cyril Edward Power, 304; Arthur Gordon Shoosmith, 237. 1,291 voting papers were received of which 27 were invalid.

LICENTIATES.—*Elected:* William Walter Begley (unopposed). 1,291 voting papers were received.

PRACTICE STANDING COMMITTEE.—FELLOWS.—*Elected:* John Alan Slater, 998 votes; Leo Sylvester Sullivan, 885; Major Charles Frederick Skipper, 777; Alexander Burnett Brown, 657.——*Not Elected:* Herbert Arthur Welch, 615; Eric Wilfrid Boning Scott, 480; William Thomas Curtis, 463. 1,293 voting papers were received of which 4 were invalid.

ASSOCIATES.—*Elected:* John Douglas Scott, 931 votes; Robert Norman Mackellar, 755.——*Not Elected*: John Batty, 502; Oliver William Mafeking Law, 247. 1,293 voting papers were received of which 6 were invalid.

LICENTIATES.—*Elected:* Frederick Roger Betenson (unopposed); Malcolm Waverley Matts (unopposed). 1,293 voting papers were received.

SCIENCE STANDING COMMITTEE.—FELLOWS.—*Elected:* William Edward Vernon Crompton, 668 votes; Lt.-Col. Percy Alfred Hopkins, 659; Robert John Angel, 612; William Alexander Harvey, 549.——*Not Elected:* George Reginald Farrow, 546; Francis George Fielder Hooper, 383; Percy Vivian Burnett, 358; James Ernest Franck, 358; Reginald Minton Taylor, 343; Sidney Harold Loweth, 269; Richard Bertram Ling, 169. 1,304 voting papers were received of which 32 were invalid.

ASSOCIATES.—*Elected:* Edwin Gunn, 899 votes; Arnold Fielder Hooper, 482.——*Not Elected:* Charles Stanley White, 428; Alister Gladstone MacDonald, 385; Rupert Charles White-Cooper, 144; Morris Lester Winslade, 122. 1,304 voting papers were received of which 28 were invalid.

LICENTIATES.—*Elected:* Percy John Waldram, 592 votes.——*Not Elected:* Major Frederick William Rees, 387; George Nathaniel Kent, 202; William Charles Symes, 45. 1,304 voting papers were received of which 38 were invalid.

Scrutineers
- E. J. W. HIDER, *Chairman.*
- RONALD TOPHAM.
- ROBERT LOWRY.
- CHARLES H. FREEMAN.
- GEOFFREY C. WILSON.
- ERNEST G. ALLEN.

8 June 1932.

The Report having been read to the Meeting a cordial vote of thanks to the Scrutineers was passed by acclamation and Mr. E. J. W. Hider [F.] briefly responded.

Notes

VICE PRESIDENT'S ENGAGEMENT

Mr. L. Sylvester Sullivan [V.P.] will attend the dinner of the Merchant Taylors' Company on 24 June, in place of the President.

Mr. Sydney Tatchell (V.P.) will be attending the Annual Dinner of the Executive Council of the Rural District Councils' Association on 20 June, and attended the ceremony of the unveiling of the Ralph Knott Memorial Plaque on 15 June.

THE R.I.B.A. COMPETITION

The following letter has been sent by the President to all those who took part in the R.I.B.A. Competition :—

9 *Conduit Street, London, W.1.*
28 *May* 1932.

DEAR FELLOW MEMBER,

On behalf of the Institute I wish to send you a special word of thanks for your contribution to the great competition for our new building. I would like you to know how very highly the work of all the competitors has been appreciated. The members of the Institute responded most loyally to this call. The numbers of leading men and of our oversea members who have helped to make the competition a success by submitting designs are very gratifying. There can, of course, be only one winning design : but the assistance which has been given by every one who entered the competition towards securing the Institute a worthy home, and towards the improvement of the Art of Architecture, has filled us with gratitude to our members and pride in their industry and loyalty. In the name of our Institute please therefore accept most hearty thanks from

Yours sincerely,
R. UNWIN
President.

THE BUILDING INDUSTRY

A LETTER TO THE PRIME MINISTER

The following letter was recently addressed to the Prime Minister by the President :—

13 May 1932.

The Rt. Hon. J. Ramsay MacDonald, M.P.,
Prime Minister,
10 Downing Street,
Whitehall, S.W.1.

DEAR PRIME MINISTER,—

At a meeting of the various branches of the Building Industry held on Wednesday, 30 March, I was commissioned as Chairman to send to you the thanks of the meeting for your very admirable and helpful statement made on the occasion of the opening of the Abbey Road Building Society's new House.

Showing the need for such a statement evidence was quoted by those present of many cases where useful and much needed building or housing work had been abandoned in the idea that such needless economy was desirable.

The representatives of the industry wished you to know that the various branches were actively engaged in exploring

together the various possibilities of improving technique, organisation and economy in connection with building operations, so that the industry may keep fully abreast of progress and invention calculated to enable a more effective service to be rendered to the community.

A representative body, called the "Building Industry Council of Review," is studying various matters affecting the efficiency of building operations and reporting upon them. In addition similar efforts to improve the service which the industry can render are being made by the various sections. From the point of view of those investing money in useful building operations, the present time offers advantageous conditions for securing favourable terms and rapid progress; and it is hoped that a substantial reduction in the very serious unemployment figures of the past winter months may soon take place. Towards this end your statement, for which the best thanks of the industry are tendered to you, will be of great help.

I have the honour to be
Yours faithfully,
(Signed) RAYMOND UNWIN.
President of the Royal Institute of British Architects.
Chairman of the Joint Committee.

The bodies represented at the meeting were :—
The Royal Institute of British Architects.
The Building Materials Manufacturers and Suppliers Committee.
The Clay Industries Employees.
The National Federation of Building Trades Operatives.
The National Federation of Building Trades Employers.
The Chartered Surveyors' Institution.
The Building Industry Council of Review.

THE FRANCO-BRITISH UNION OF ARCHITECTS

MEETING IN LONDON

The twelfth annual meeting of the Franco-British Union of Architects will take place from 14 to 17 July with London as the headquarters.

It is anticipated that a number of distinguished French architects will attend the meeting.

The programme includes an all day motor excursion to Hampton Court and Windsor and a visit to several new London buildings which are not usually accessible to the public.

As special arrangements have to be made in connection with this programme and members will be limited, members of the Franco-British Union are asked to communicate with Mr. H. C. Bradshaw, F.R.I.B.A., Hon. Secretary of the British Committee, 7 Vigo Street, W.1, as soon as possible if they wish to take part in the proceedings.

Ladies and guests may be invited (if numbers permit) to all the items in the programme except the dinner at the Burlington Hotel on 15 July, which is limited to members of the Union.

THE PROGRAMME

Thursday 14 July
5.15 p.m. Arrival of French delegates.
6.30 p.m. Visit to the Building Centre, 158 New Bond Street.
9.0 p.m. Reception by the President and Council of the R.I.B.A. at 9 Conduit Street, W. (morning dress).

Friday 15 July
All day excursion by motor coach to Hampton Court and Windsor
9.30 a.m. Depart 9 Conduit Street.
10.15 a.m. Arrive at Hampton Court.
10.30 to 12.30 Visit to Hampton Court Palace.
12.45 p.m. Lunch at the Tilting Yard Refreshment Room.
2.0 p.m. 12th Annual General Meeting.
3.0 p.m. Depart Hampton Court Palace for Windsor.
3.30 p.m. Visit to the Castle and St. George's Chapel, Windsor.
5.30 p.m. Leave Windsor for London. 5.40 p.m.
7.45 p.m. Dinner at the Burlington Hotel by invitation of the R.I.B.A. Council Dinner Club (morning dress).
for 8.0 p.m.

Saturday 16 July
10.30 a.m. to 11.30 Visit to B.B.C. House, Langham Place, by special invitation of the B.B.C.
12.0 noon Visit to the new offices of the *Daily Express*, Fleet Street.
12.30 to 1.30 Lunch at "Cheshire Cheese," Fleet Street.
2.0 p.m. Visit to the Bank of England, under the guidance of Sir Herbert Baker, R.A.
3.0 p.m. Visit to Westminster Bank Head Office, Lothbury, under the guidance of Mr. Arthur J. Davis, F.R.I.B.A.
3.30 p.m. Visit to Martin's Bank, Lombard Street.
4.0 p.m. Visit to Lloyds Shipping Register under the guidance of Sir Edwin Cooper, A.R.A.
4.30 p.m. Visit to the Mansion House by invitation of the Rt. Hon. the Lord Mayor.
6.0 p.m. Reception at the Architectural Association by invitation of the President and Council (morning dress).
Evening free.

Sunday 17 July
French delegates return to Paris.

THE SOCIETY OF ANTIQUARIES

The following members of the R.I.B.A. were recently elected members of the Council of the Society of Antiquaries : Mr. A. T. Bolton [*F.*], Mr. A. E. Henderson [*F.*], and Mr. Sidney Toy [*F.*]. Sir Charles Peers [*F.*] was re-elected President of the Society.

DISTRICT SURVEYORS' ASSOCIATION

The following changes in the appointments of District Surveyors in London have taken place recently:—

Mr. G. M. Hall, late Assistant Surveyor of Westminster West, has been appointed to Chelsea in place of Mr. T. S. Hosking [*A.*], who goes to Lambeth South. Mr. P. J. Black [*L.*], late of Lambeth North, is appointed to Kensington South on the retirement of Mr. H. A. Legge [*A.*], and Mr. F. P. Watson, late of Lambeth South, has been appointed to Lambeth North. The office of the Surveyor for Westminster West has been removed to 29 Maddox Street, W.1.

THE INSTITUTION OF STRUCTURAL ENGINEERS

Major E. C. P. Monson, T.D. [*F.*] has been elected president of the Institution of Structural Engineers. Other members of the R.I.B.A. on the Council of the Institute of Structural Engineers are: Vice-President, Mr. J. T. Saunders [*F.*]. Hon. Librarian, Mr. A. J. Taylor [*F.*], and as ordinary Members of Council Mr. P. J. Black [*L.*] and Dr. Oscar Faber [*Hon. A.*].

THE HOUSING ACT

The attention of members is drawn to the Statutory Rules and Orders [1932, No. 354]: Housing, England, issued by H.M. Stationery Office. This publication gives the Housing Acts Regulations made by the Minister of Health under Section 57 of the Housing Act 1930.

"THE GREAT TEMPLE OF DIANA AT EPHESUS"

An exhibition will be held in the Galleries of the Royal Institute of British Architects, 9 Conduit Street, Regent Street, W.1, of an $\frac{1}{8}$ inch scale model of the Hellenistic Temple of Artemis (Diana) at Ephesus, from 1 p.m. on Monday, 20 June to Friday, 24 June inclusive from 10 a.m. to 8 p.m.

This model was built at the British Museum under the supervision of Mr. A. E. Henderson, F.S.A., F.R.I.B.A., who will speak upon it on Tuesday, 21 June, at 6.15 p.m.

The Exhibition and Lecture will be free.

ARCHITECTS (REGISTRATION) ACT 1931

The Board of Architectural Education constituted in accordance with the Second Schedule of the Act, and the Admission Committee constituted in accordance with the Third Schedule of the Act have appointed the following members as Chairman and Vice-Chairman respectively :—

Board.—Chairman, Mr. W. H. Ansell, M.C., F.R.I.B.A. Vice-Chairman, Mr. A. H. Moberly, M.A., F.R.I.B.A.

Admission Committee.—Chairman, Mr. L. Sylvester Sullivan, F.R.I.B.A. Vice-Chairman, Mr. A. Randall Wells.

A PORTRAIT OF WILLIAM BURGES WANTED

A correspondent wishes to find a portrait of William Burges. If any member knows of the existence of any drawing, painting or photograph, or a reproduction, will he please communicate with the Librarian.

HORNTON STONE

A Request for Information

The Science Standing Committee has received from a member of the Institute an enquiry regarding Hornton Stone from Banbury, Oxon; it is stated to be a brown stone, veined with blue and very hard.

As the correspondent is anxious to obtain the views of other members, the Hon. Secretary of the Science Standing Committee would be very glad if members who have had any experience of this stone would write to him at the R.I.B.A.

THE DANGER OF MIXING PORTLAND CEMENT AND GYPSUM PLASTERS

The attention of the Science Standing Committee has recently been drawn to a case of very serious failure of plasterwork due to the mixing of a gypsum (calcium sulphate) plaster with Portland cement. This is a practice which must be strongly deprecated since, beyond the normal amount of about 2 to 3 per cent. of ground gypsum added by the manufacturer to Portland cement to control the setting time, there is a danger not only of interference with the normal set of the cement, but also of the formation in the set cement of large proportions of calcium sulpho-aluminate. The gypsum added during manufacture, by reaction with the hydrated calcium aluminate produced while the cement is setting, entails of course a limited and innocuous quantity of sulpho-aluminate; but the slow formation of this compound in the presence of moisture, which results from the addition of appreciable quantities of calcium sulphate plaster, is likely to lead to gross failure owing to the considerable expansion which necessarily accompanies it. This slow formation of calcium sulpho-aluminate in set cement is indeed well known to be one of the causes of the serious disintegration of cement concrete which sometimes occurs in sea and other sulphate containing waters. The particular failure in question took the form of bulging and blistering and necessitated the complete removal of all internal plasterwork. There was no indication in the advertisement literature in this case as to the composition of the plaster which was incorporated: it was in fact an accelerated hard-burnt calcium sulphate plaster of the Keene's type, but it was described as a "hydraulic cement," and its use with Portland cement was definitely advocated. Unfortunately, it would appear that architects can place little reliance on much of the trade literature, and in their own interest would be well advised when dealing with materials of composition unknown to them to refer to an authoritative body such as the Building Research Station for any information they may have on the properties of such materials.

ARCHITECTS' UNEMPLOYMENT RELIEF FUND

The Architects' Unemployment Committee have much pleasure in giving a further list of donations to the Unemployment Relief Fund which have been received since the last issue of the JOURNAL.

Croydon Chapter of the South-Eastern Society, £5; the West Essex Chapter of the Essex, Cambridge and Herts Society, £5; Mr. T. E. Eccles, £5; Mr. Frank M. Webster and Mr. H. L. G. Pilkington, each £2 2s. From the Bristol Society of Architects (third list): Messrs. Mowbray, Green and Hollier, £2 (subscription for two months); Mr. F. H. H. Webb, £1 (second donation); Mr. E. H. Button, £2 2s., and Mr. R. S. Redwood, £2 2s.

The names of the subscribers from the Architects' Department, Croydon Borough Engineer's Office, have now been received as follows :—

Mr. D. Weightman; Mr. R. Pitt; Mr. G. Wolfe; Mr. W. Harrison and Mr. E. E. Hodder.

Mr. Ben Haylor has joined the scheme as a subscriber as have also members of the Architects' Department of the General Post Office.

ARCHITECTS' GOLFING SOCIETY

A meeting of the above Society was held on Friday, 27 May, at the Sandy Lodge G.C., Herts. A medal round was played in the morning for the "Captain's Cup." Leading returns were:

E. J. T. Lutyens	..	89—11 = 78
H. White	.. ..	87— 8 = 79

In the afternoon a foursome against bogey was played. Leading returns were:

H. W. Smith R. B. Selby	3 up
F. J. Buckland H. St. John Harrison	2 up

The meeting was honoured by the presence of the President of the Society (Sir G. G. Scott). 15 other members attended.

The morning round was played in a deluge of rain; the afternoon being a little less unpleasant, though far from congenial. The Society is open to all whose names are in the Kalendar; will anyone who is interested please communicate with the Hon. Sec., R. B. Selby [*A.*], c/o A.A., 36 Bedford Square, W.C.1.

NOTES FROM THE MINUTES OF THE COUNCIL

9 May 1932

R.I.B.A. New Premises Committee

The Council formally adopted the report of the New Premises Committee and the Award of the Jury of Assessors, and formally appointed Mr. G. Grey Wornum [*F.*] as Architect for the new R.I.B.A. Building.

On the proposition of Mr. Percy Thomas, the sincere congratulations of the Council were conveyed to Mr. Wornum on his success.

On the proposition of the President, a very cordial vote of thanks was passed in favour of the Jury of Assessors and the New Premises Committee for their arduous labours in the matter.

Overhead Electrification Schemes in Towns and Villages

On the recommendation of the Art Standing Committee, it was decided to remind the Allied Societies of the importance of keeping

in touch with the local branches of the C.P.R.E. and similar bodies, and watching for any proposals for new electrification schemes so as to be in a position to make representations at an early date to the authorities concerned if any schemes proposed were likely to affect adversely the amenities of the towns and villages and countryside through which they would pass.

Apprentices and Training

The Interim Report of the Architects' and Operatives' Joint Consultation Board on the subject of apprentices and training was received.

Pamphlet on "Architecture in the Public and Secondary Schools"

On the recommendation of the Board of Architectural Education, it was decided to reprint the pamphlet on "Architecture in the Public and Secondary Schools" and to send copies with a suitable covering letter to the following institutions and persons in the United Kingdom: (*a*) Public and Secondary Schools. (*b*) The R.I.B.A. Allied Societies and Branches. (*c*) All directors of Education. (*d*) Registrars of Universities. (*e*) Secretaries of Training Colleges for Teachers.

R.I.B.A. Statutory Examination for District Surveyors, May 1932

The Council approved the result of the Examination as follows:—

Passed: Campbell, Edgar Lionel.
Jones, Desmond Seely.
King, Richard Herbert.

Congress of Contemporary Art, Venice, 30 April to 3 May, 1932

The Council approved the action of the Executive Committee in appointing Lt.-Col. H. P. Cart de Lafontaine as the R.I.B.A. delegate to the above Congress.

The R.I.B.A. Architecture Medals

Royal Institute of the Architects of Western Australia.—Lt.-Gen. Sir Talbot Hobbs [*F.*] was appointed to represent the Council on the Jury for the Award of the Medal in Western Australia.

West Yorkshire Society of Architects.—The Council approved the action of the President in appointing Mr. J. B. Surman [*F.*] (President of the Birmingham Architectural Association) as the Council's representative on the West Yorkshire Society of Architects' Jury in place of Sir Edwin Cooper [*F.*], who was unable to serve.

Eighteenth Annual Conference of the National Association for the Prevention of Tuberculosis, London, 21 July to 23, 1932

Mr. E. Stanley Hall [*F.*] was appointed as the R.I.B.A. delegate to the above Conference.

Nomination of Honorary Auditors for 1932–1933

It was decided to recommend the nomination of Mr. A. H. Goslett [*F.*] and Mr. J. Maclaren Ross [*A.*] as Hon. Auditors for the Session 1932–33.

The Honorary Associateship

It was decided to nominate Sir Lionel Jacob, K.C.S.I., for election as an Honorary Associate.

Alteration of Bye-Laws of the South-Eastern Society of Architects

Certain alterations in the Bye-laws of the South-Eastern Society of Architects were formally approved.

Alteration of the Rules of the Wessex Society of Architects

The Council formally approved an alteration in Rule No. 8 of the Wessex Society of Architects.

Membership

The following Members were elected:—

As Fellows	7
As Associates	19
As Licentiates	15

Election 13 June 1932.—Applications for Membership were approved as follows:—

As Hon. Corresponding Members	2
As Fellows	5
As Associates	3
As Licentiates	15

Reinstatement.—The following ex-member was reinstated:—
As Licentiate: Walter Ernest Jefferiss.

Resignations.—The following resignations were accepted with regret:—
Joseph Edward Mundell [*F.*].
Frank Harold Bromhead [*A.*].
Harold Louis Ixer [*L.*].

Membership Lists

ELECTION OF MEMBERS, 13 JUNE 1932

In accordance with the terms of Bye-laws 10 and 11, the following candidates for membership were elected at the Council Meeting held on Monday, 13 June 1932, :—

AS HON. CORRESPONDING MEMBERS (2)

Guiard: Georges, Neuilly-sur-Seine (Seine), France.
Rivarola: Jorge Victor, Buenos Aires, Argentine.

AS FELLOWS (4)

Hiscock: Leslie Robert [*A.* 1925], Guildford.
Stuttle: Benjamin William [*A.* 1926].
and the following Licentiates who have passed the qualifying Examination:—
Farmer: Willie George.
Marwick: Thomas Craigie, Edinburgh.

AS ASSOCIATES (3)

Booth: David [Passed five years' course at the Architectural Association. Exempted from Final Examination]. Broadway, Worcestershire.
Mitchell: Tom Noel, B.Arch.(Lvpl.) [Passed five years' course at the Liverpool School of Architecture, University of Liverpool. Exempted from Final Examination.] Blackpool.
Ullmann: Miss Eugenie Dorothy [Passed five years' course at the Architectural Association. Exempted from Final Examination].

AS LICENTIATES (15)

Armistead: Lt.-Col. Richard Burnie, M.C., Bradford.
Barber: Norman Arthur, Derby.
Biss: Gordon Sydenham, Cardiff.
East: Denis O'Neil, Salisbury.
Fortune: Cyril George Goddard.
Jackson: Norman King, Exeter.
Jones: John Harold, Birmingham.
Morgan: Evan.
Mort: Arthur Edward Thomas, Winchester.
Mulliss: Ernest James, Wakefield.
Ochterlony: Sir Matthew Montgomerie, Bart., Edinburgh.
Thomas: Capt. B. W., M.C.
Thorne: George Lewis, Southampton.
Timmins: Samuel Dennis Walley, Bromley.
van Langenberg: Victor Stanley, Kuala Lumpur, F.M.S.

APPLICATIONS FOR MEMBERSHIP

Election: 4 July 1932

In accordance with the terms of Bye-laws 10 and 11, an election of candidates for membership will take place at the Council Meeting to be held on Monday, 4 July 1932. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified

in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or other communication respecting them must be sent to the Secretary R.I.B.A., not later than Tuesday, 28 June 1932.

AS HON. ASSOCIATE (1)

JACOB: SIR LIONEL MONTAGUE, K.C.S.I., M.Inst.C.E., 37 Queen's Mansions, 54 Victoria Street, S.W.1. Proposed by the Council.

AS HON. CORRESPONDING MEMBER (1)

BAROFFIO: EUGENIO P., Director of Architecture of the Municipality of Montevideo; President of the Society of Architects of Uruguay; Hon. Member of the Academy of Fine Arts of Milan; Professor of Preparatory Education. Calle Canelones 1429, Montevideo, Uruguay. Proposed by the Council.

AS FELLOWS (5)

CART DE LAFONTAINE: HENRY PHILIP L., Lieut.-Col. Reserve of Officers (T.A.) (*A.* 1919), O.B.E., T.D., Officier d'Academie, France. Hon.Corr.MemberA.I.A.(U.S.A.),S.A.D.G.(France), A.A.L. (Belgium), 11 Suffolk Street, Pall Mall East, S.W.1; 80a Lansdown Road, W.11. Proposed by E. Guy Dawber, Sir Reginald Blomfield and C. E. Bateman.

CLIST: HUBERT (*A.* 1923), Bank Buildings, Kidderminster; Smith's Turning, Whitehill Road, Kidderminster. Proposed by Wm. Hubert Godwin, E. Stanley Hall and Howard Robertson.

FORD: THOMAS FRANCIS (*A.* 1920), 12 City Road, E.C.1; 8 North Park, Eltham, S.E.9. Proposed by W. A. Forsyth and Philip M. Johnston and applying for nomination by the Council under the provisions of Bye-law 3 (d).

and the following Licentiates who have passed the qualifying Examination:—

KENNARD: LAURENCE, 15 and 16 Railway Approach, London Bridge, S.E.1; "Avalon," Hill Crescent, Totteridge, N.20. Proposed by Thos. E. Scott, Herbert J. Axten and F. E. Mennie.

O'ROURKE: HORACE TENNYSON, City Architect, City Architect's Department, Dublin; Brentwood, Brendan Road, Donnybrook, Dublin. Proposed by Fred. G. Hicks, J. J. Robinson and Henry J. Lyons.

AS ASSOCIATES (12)

AITKEN: FRANCIS KEITH [Passed five years' course at the Welsh School of Architecture, The Technical College, Cardiff. Exempted from Final Examination.] Leighton, Creigian, near Cardiff. Proposed by Percy Thomas, T. Alwyn Lloyd and Harry Teather.

BOGER: ROBIN CECIL DUDLEY [Passed five years' course at the Architectural Association. Exempted from Final Examination]. Dial Cottage, Kingsdown, Deal. Proposed by Alex. T. Scott, Lord Gerald Wellesley and Howard Robertson.

COOK: WEYMOUTH KEITH [Final], 10 Myrtle Street, Lower Hutt, New Zealand. Proposed by William M. Page, P. H. Graham and William Turnbull.

GOODACRE: NORMAN WILLIAM, B.Arch. [Passed five years' course at the Liverpool School of Architecture, University of Liverpool. Exempted from Final Examination]. Greetby Cottage, Ormskirk, Lancs. Proposed by Professor C. H. Reilly, Professor Lionel B. Budden and T. Taliesin Rees.

LONGLAND: ARCHIBALD TATHAM [Final], "Tennyson," Yeerongpilly, Brisbane, Queensland. Proposed by Langé L. Powell, Alfred H. Foster and T. B. M. Wightman.

MACLEOD: NEIL [Passed five years' course at the School of Architecture, Robert Gordon's Colleges, Aberdeen. Exempted from Final Examination]. Viewhill, Elphin, Lairg, Sutherlandshire. Proposed by R. Leslie Rollo, Robt. G. Wilson and W. J. Taylor.

MILES: (MISS) MARJORIE, B.Arch. [Passed five years' course at the Liverpool School of Architecture, University of Liverpool. Exempted from Final Examination]. Milnthorpe, Westmorland. Proposed by Professor C. H. Reilly, Professor Lionel B. Budden and J. Sp. Curwen.

RICHARDSON: (MISS) RACHEL JOAN, Dip. Arch. (Lvpl.) [Passed five years' course at the Liverpool School of Architecture, University of Liverpool. Exempted from Final Examination]. Colvend, Boundary Road, Bidston, Cheshire. Proposed by Professor Lionel B. Budden, Professor Patrick Abercrombie and T. F. Shepheard.

SMITH: DENIS BALMFORTH [Passed five years' course at the School of Architecture, Leeds College of Art. Exempted from Final Examination]. Oakfield, Rodley, near Leeds. Proposed by G. H. Foggitt, H. S. Chorley and B. R. Gribbon.

TAYLOR: DOUGLAS SETH, B.A. [Passed five years' joint course at the School of Architectural Studies, Cambridge University and the Architectural Association. Exempted from Final Examination]. 14 St. Mary's Road, Wimbledon, S.W.19. Proposed by Howard Robertson, V. O. Rees and Louis de Soissons.

TURNER: WILFRID JOHN CARPENTER [Passed five years' course at the Architectural Association. Exempted from Final Examination]. Overton Rectory, Basingstoke, Hants. Proposed by Howard Robertson, Louis de Soissons and V. O. Rees.

WINSTON: DENIS, B.Arch. [Passed five years' course at the Liverpool School of Architecture, University of Liverpool. Exempted from Final Examination]. 13 Menlove Avenue, Liverpool. Proposed by Professor C. H. Reilly, Professor Lionel B. Budden and Professor Patrick Abercrombie.

AS LICENTIATES (17)

BAILEY: HARRY EDWARD, Borough Surveyor's Department, Ilkeston Corporation, Town Hall, Ilkeston; 121 Park Road, Ilkeston. Proposed by J. A. Gotch, R. J. Williams and Charles Riddey.

BARR: EWEN SYDNEY, 20 Berkeley Street, Piccadilly, W.1; "Old Cottage," Laleham-on-Thames, Middlesex. Proposed by Courtenay M. Crickmer, W. Ralph Low and Percy C. Boddy.

BLAKE: JOHN JAMES, Education Architect's Department, West Riding of Yorkshire County Council; "Oaklynn," Oakleigh Avenue, Dewsbury Road, Wakefield. Proposed by C. A. Clayton Greene, Charles T. Marshall and William Tweedy.

BUCK: ROLAND JAMES, Departamento de Via y Obras, Ferro Carril del Sud, 322 Calle Guanahani, Buenos Aires, Argentine. Proposed by James Smith, Sydney G. Follett and L. B. Frank.

CHERMAYEFF: SERGIUS IVAN, 173 Oxford Street, W.1; 52 Abbey Road, N.W.8. Proposed by Christian Barman, Edward Maufe and H. Austen Hall.

HINDERER: Captain CLAUDE MICHAEL BOYS, M.C., Nairobi, Kenya Colony; P.O. Box 201, Mombasa, Kenya. Proposed by Harold E. Henderson and the President and Hon. Secretary of the East Africa Institute of Architects under the provisions of Bye-law 3 (*a*).

JACKSON: ELLIOTT WILLSHER, c/o E. R. Barrow, Esq., Lennox House, Norfolk Street, Strand, W.C.2; 42 Hillfield Park, Muswell Hill, N.10. Proposed by Ernest R. Barrow, A. Burnett Brown and H. Yolland Borcham.

LAWRENCE: SPENCER HENRY, 7 Gray's Inn Place, W.C.; Homefield Cottage, St. Stephen's Road, W.13. Proposed by P. D. Hepworth, R. Palmer Baines and W. S. Grice.

NICOLLE: PHILIP STEPHEN BRUCE, Staff Architect, Prices' Tailors, Ltd., Cardigan Crescent, Leeds; "Invercauld," The Crescent, Lawnswood, Leeds. Proposed by Archibald Neill and the President and Hon. Secretary of the West Yorkshire Society of Architects under the provisions of Bye-law 3 (*a*).

NIXON: HAROLD BERNARD NORTHCOTE, Architect's Department, Town Hall, Ilford, Essex; 30 Valentines Road, Ilford, Essex. Proposed by J. Bruce Merson, B. H. Parkin Haigh and H. C. Hughes.

PENNY: JAMES WARWICK, Works and Buildings Department, Air Ministry, Uxbridge; 24 Priory Way, North Harrow, Middlesex. Applying for nomination by the Council under the provisions of Bye-law 3 (*d*).

RAMUS: HERBERT JOSEPH, 11 Old Queen Street, Westminster, S.W.1; 203 Navarino Mansions, Hackney, E.8. Proposed by Harry W. Ford, S. H. Loweth and Lawrence A. D. Shiner.

SALONIKA: ISADORE HERNE, Box 184, N'dola, Northern Rhodesia. Proposed by Captain J. R. Hobson and the President and Hon. Secretary of the Institute of Southern Rhodesian Architects under the provisions of Bye-law 3 (*a*).

SAREL: HENRY WALTER MOLYNEUX, 2 Caroline Street, Eaton Square, S.W.1; 4 Onslow Square, S.W.7. Proposed by A. H. Jones, E. B. Hoare and James G. Gibson.

SCHOLEFIELD: GEORGE HAROLD, Surveyor's Department, Town Hall, Rochdale; 10 Goldsworthy Road, Flixton, Manchester. Proposed by the President and Hon. Secretary of the Manchester Society of Architects under the provisions of Bye-law 3 (*a*), and applying for nomination by the Council under the provisions of Bye-law 3 (*d*).

TATAM: THOMAS, 32 Caskgate Street, Gainsborough, Lincs; Hemswell, Lincoln. Proposed by F. C. R. Palmer and the President and Hon. Secretary of the Sheffield, South Yorkshire and District Society of Architects and Surveyors under the provisions of Bye-law 3 (*a*).

WHITE: PERCY HENRY, P.A.S.I., 20 Bridge House, 181, Queen Victoria Street, E.C.; "Northrepps," Hutton Mount, Essex. Proposed by Sir Banister Fletcher, Wallace Marchment and Sydney T. Evershed.

Notices

MEMBERSHIP OF THE R.I.B.A.

The Licentiate Class

The revised Bye-laws of the Royal Institute of British Architects have received the approval of His Majesty's Privy Council, and applications may now be sent in for membership of the R.I.B.A. in the Licentiate Class. Full information and the necessary forms will be sent on application being made to the Secretary R.I.B.A., 9 Conduit Street, London, W.1.

ASSOCIATES AND THE FELLOWSHIP

Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the election to take place on 7 November 1932, they should send the necessary nomination forms to the Secretary R.I.B.A. not later than Saturday, 2 July 1932.

LICENTIATES AND THE FELLOWSHIP

The attention of Licentiates is called to the provisions of Section IV, Clause 4 (*b*) and (*cii*), of the Supplemental Charter of 1925. Licentiates who are eligible and desirous of transferring to the Fellowship can obtain full particulars on application to the Secretary R.I.B.A., stating the clause under which they propose to apply for nomination.

CESSATION OF MEMBERSHIP

The name of Hugh Stewart (British Columbia) has been removed from the Register of Licentiates R.I.B.A.

AN EXHIBITION OF WORKING DRAWINGS

There is to be an exhibition of working drawings in the R.I.B.A. Galleries from 15 to 25 June, inclusive, when drawings from the offices of Mr. E. Stanley Hall [*F.*] (Laboratory Block, Queen Charlotte's Hospital, Hammersmith. House at Headley, Surrey), Mr. T. P. Bennett [*F.*] (Saville Theatre), Mr. H. T. Buckland [*F.*] (Violet Melchett Infant Welfare Centre), Messrs. Herbert O. Ellis and Clarke [*FF.*] (*Daily Express* Building), Mr. W. H. Ansell [*F.*] (Hospital at Westbury, Wilts), will be exhibited.

Competitions

DUNGANNON: NEW GENERAL HOSPITAL

Members of the Royal Institute of British Architects and of its Allied Societies must not take part in the above competition, because the Conditions are not in accordance with the published Regulations of the Royal Institute for Architectural Competitions.

EASTBOURNE: GRAND PARADE SCHEME

Members of the Royal Institute of British Architects and of its Allied Societies must not take part in the above competition, and must not submit schemes for the Grand Parade Scheme, Eastbourne, because the Conditions are not in accordance with the published Regulations of the Royal Institute for Architectural Competitions.

SCARBOROUGH: NEW HOSPITAL BUILDINGS

The Board of Management of the Scarborough Hospital and Dispensary invite architects to submit, in open competition, designs for new hospital buildings to be erected on a site on the Woodlands Estate, Scalby Road, Scarborough.

Assessor: Mr. H. M. Fairweather [*F.*].
Premiums: £300, £200 and £100.
Last day for receiving designs: 1 October 1932.
Last day for questions: 16 May 1932.
The last day for applying for conditions was 1 April 1932.

STOCKHOLM: TOWN PLANNING COMPETITION

The City of Stockholm, through its town planning board, invites proposals for a town planning scheme to cover the area designated Lower Norrmalm, which occupies a central position in the city. The object of the competition is to secure preliminary proposals for a solution of the town planning problem, which would enable a gradual reconstruction of this district to be carried out, with due regard to the present requirements as to the capacity of the streets and the supply of light and air for the blocks of houses.

Proposals submitted will be examined by a committee consisting of the following:—

Harry Sandberg, Civic Councillor, Stockholm (Chairman).
Dr. Yngue Larsson, Civic Councillor, Stockholm (Vice-Chairman).
Gustaf Ahlbin, Stockholm.
E. G. Asplund, Stockholm.
Carl Bergsten, Stockholm.
Hermann Jansen, Berlin.
Albert Lilienberg, Director of Town Planning, Stockholm.
George L. Pepler, London.
Professor Ragnar Ostberg, (Hon. Corresponding Member R.I.B.A.), Stockholm.

Premiums: 20,000 Kr. (approx. £1,000).
15,000 Kr. (approx. £750).
10,000 Kr. (approx. £500).
and further amounts to bring the total prize money up to 60,000 Kr.

Last day for sending in proposals: 1 March 1933.
Last day for questions: 1 August 1932.

Documents dealing with the competition may be obtained on application to the Registrar, Town Planning Office, Stadshuset, Stockholm. Deposit 40 Kr. (approx. £2).

(Particulars have not yet been considered by the Competitions Committee.)

Members' Column

MR. ARTHUR KEEN

THE entry in the last Members' Column stating that Mr. Arthur Keen had closed his London office was wrongly headed *Cessation of Practice*. Mr. Keen has not retired from his practice but will in future conduct it from Limpsfield, Surrey.

CHANGE OF ADDRESS

NEWSTEAD A. ALLEN, Mus. Bac. [*A.*], has opened an office for the practice of architecture at 630 Dorchester Street West, Montreal. He would appreciate trade journals and catalogues, particularly those of British manufacturers who have Canadian representatives.

MR. A. B. WHITTINGHAM, M.A., A.R.I.B.A., has opened an office at No. 10 Tower Street, Ipswich. Telephone Ipswich 2989.

MR. WALTER GRAY ROSS [*A.*], recently returned from New York, has opened an office at "Newlands," Higher Drive, Banstead, Surrey and will be glad to receive trade catalogues, samples, etc. Telephone Ewell 1573.

PARTNERSHIP REQUIRED

ASSOCIATE, keen, reliable and of wide experience as managing assistant, requires a partnership in well-established practice. Proposition must be sound. Exceptional experience in institutional work. Highest references. Some capital available.—Apply to Box 9632, c/o Secretary R.I.B.A.

SCARBOROUGH COMPETITION

WILL member not competing hand over his conditions, etc., to member who wishes to compete.—Write Box No. 1063, c/o Secretary R.I.B.A.

ACCOMMODATION TO LET

A FELLOW wishes to let one furnished room in his suite of offices at Westminster. Clerical services and telephone included, if desired. Apply Box 1632, c/o Secretary R.I.B.A., 9 Conduit Street, W.1.

MEMBER has a room to spare at his West End office, including 'phone, etc.—Box 3632, c/o Secretary R.I.B.A., 9 Conduit Street, W.1.

OWING to his appointment as County Architect to the East Suffolk County Council, Mr. E. J. Symcox [*A.*] has resigned the position of Hon. Secretary to the Hertfordshire Chapter of the Essex, Cambridge and Hertfordshire Society of Architects. Until a new Hon. Secretary is appointed communications for the Hertfordshire Chapter should be sent to the Chairman, Mr. Percival P. Blow [*A.*], at 1 High Street, St. Albans.

Minutes XXI

SESSION 1931-1932

At the Fifteenth General Meeting of the Session 1931-1932, held on Monday, 13 June 1932, at 8 p.m.,

Sir Raymond Unwin, President, in the Chair.

The attendance book was signed by 24 Fellows (including 10 members of Council), 11 Associates (including 4 Members of Council) and 7 Licentiates (including 4 Members of Council).

The Minutes of the Fourteenth General Meeting held on 30 May, having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The Hon. Secretary announced the decease of:—

William John Devlin, elected Associate 1902,
Albert Bye, elected Licentiate 1931,
Harold Hudson Morley, elected Licentiate 1931,
James Wilding, transferred to Licentiateship 1925,

and it was Resolved that the regrets of the Institute for their loss be entered on the Minutes, and that a message of sympathy and condolence be conveyed to their relatives.

The Scrutineers' Report, giving the results of the Annual Election of the Council, the Standing Committees and the Hon. Auditors was read.

The President declared the Officers, Members of the Council, the Standing Committees and the Hon. Auditors duly elected in accordance therewith.

On the motion of the President, a vote of thanks was passed by acclamation to the Scrutineers for their labours in connection with the elections.

Mr. Arthur T. Bolton, F.S.A. [*F.*], and Mr. H. Duncan Hendry [*F.*], the editors of the Wren Society, presented to the Institute Volume IX of the Wren Society, which had been specially bound and dedicated to the President and Council of the R.I.B.A.

Mr. Goodhart-Rendel [*F.*], Chairman of the Literature Standing Committee, briefly thanked the Wren Society for their gift.

On the motion of Mr. Sydney Tatchell, Vice President, a hearty vote of congratulation was passed by acclamation to the President on the Honour of Knighthood recently conferred upon him by H.M. the King.

The proceedings closed at 8.45 p.m.

A.B.S. INSURANCE DEPARTMENT.
HOUSE PURCHASE SCHEME
(for property in Great Britain only).
Further Privileges now Available.

The Society is able, through the services of a leading Assurance Office, to assist an Architect (or his client) in securing the capital for the purchase of a house for his own occupation, on the following terms :—

AMOUNT OF LOAN.

Property value exceeding £666, but not exceeding £2,500 75 per cent. of the value.

Property value exceeding £2,500, but not exceeding £4,500, 66⅔ per cent. of the value.

The value of the property is that certified by the Surveyor employed by the Office.

N.B.—Legal costs and survey fees, and, in certain cases, the amount of the first quarter's premium payment will be advanced in addition to the normal loan.

RATE OF INTEREST.

In respect of loans not exceeding £2,000 5½ per cent. gross.
" " in excess of " 5¾ " "

REPAYMENT.

By means of an Endowment Assurance which discharges the loan at the end of 15 or 20 years, or at the *earlier death* of the borrower.

SPECIAL CONCESSION TO ARCHITECTS.

In the case of houses in course of erection, it has been arranged that, provided the Plan and Specification have been approved by the Surveyor acting for the Office, and the amount of the loan agreed upon, and subject to the house being completed in accordance therewith, ONE HALF of the loan will be advanced on a certificate from the Office's Surveyor that the walls of the house are erected and the roof on and covered in.

NOTE.—Since 1928, over £50,000 has been loaned to architects under this scheme, and as a result over £600 has been handed to the Benevolent Society.

If a quotation is required, kindly send details of your age next birthday, approximate value of house and its exact situation, to the Secretary, A.B.S. Insurance Department, 9 Conduit Street, London, W.

It is desired to point out that the opinions of writers of articles and letters which appear in the R.I.B.A. JOURNAL must be taken as the individual opinions of their authors and not as representative expressions of the Institute.

R.I.B.A. JOURNAL.

DATES OF PUBLICATION.—1932: 9 July; 6 August; 10 September; 20 October.